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The

British Medical Journal

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A British Medical Association Lecture

ON THE

RELATION OF EARLY MISTAKES IN INFANT FEEDING TO THE DYSPEPSIAS OF LATER INFANCY AND CHILDHOOD.*

BY

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At a recent meeting of the Section for the Study of the Diseases of Children at the Royal Society of Medicine, Dr. Jules Taillens,[1] professor of paediatrics at the University of Lausanne, gave a very interesting address on the same subject as that which I have chosen for this lecture—that is to say, "The dyspepsias of childhood."

Professor Taillens claimed that these dyspepsias often took a misleading form and produced symptoms of general weakness, wasting, pyrexia, and even coughing, which were frequently mistaken for those of tuberculosis. He further stated that gastric hyperchloracidity, or, as we usually call it, hyperchlorhydria, was the most frequent cause of these dyspepsias. Owing to the limitation of time, Professor Taillens did not explain exactly how hyperchlorhydria developed into the above group of symptoms, and although I agree with him that hyperchlorhydria may ultimately produce such results, I am not sure that I should agree with him as regards the explanation. His address, however, created so much interest that I thought that the same subject might well form the basis of this lecture.

If hyperchlorhydria, or the excessive secretion of hydrochloric acid in the stomach, is accompanied by a corresponding supply of pepsin, there must be a great capacity for digesting protein, and, as a matter of fact, there is usually in cases of hyperchlorhydria a considerable appetite or craving for nitrogenous foods. Individuals who are the subjects of such gastric hyperacidity do not, as far as my experience goes, suffer at first from any of the recognized symptoms of dyspepsia. They are usually, at least during the early years of life, individuals with a healthy appetite. They enjoy their food, are impatient for their meals, and appear to be well nourished. They sometimes feel a so-called "sinking of the stomach" if their cravings for food are not immediately satisfied, but these discomforts pass off rapidly after a meal. Such individuals deserve to be regarded as "eupeptics" rather than dyspeptics. None the less, if these individuals, as they grow older, continue with full meals, they begin to have epigastric pain about two hours after food—a premonition of duodenal ulcer. Similarly, infants and quite young children with various degrees of hyperchlorhydria do not suffer from ordinary dyspeptic symptoms, but they do suffer from periodic attacks which, according to my own interpretation, depend on a disturbance of liver function. Among the several functions which the liver performs, one of the chief is the de-aminization of amino-acids, and their conversion into urea or ammonia. There is a limit to the tolerance of all organs with respect to each of their functions, and when these limits of tolerance are overstepped they will show signs of fatigue and cause the development of various symptoms which are the direct result of such breakdowns; the liver is no exception to this rule—with overwork its power to de-aminize amino-acids begins to wane.

Now with hyperchlorhydria there are strong inducements to consume excessive quantities of protein foods, which, if indulged, will impose on the liver the duty of de-aminizing very large quantities of amino-acids. The result is easy to predict. When hepatic function fails and the de-aminizing process is feebly conducted, it follows that the amino-acids in an unchanged condition will gain access to the systemic circulation.

In a very interesting paper[2] contributed by Dr. H. W. Barber and Dr. G. H. Oriel to the Section of Dermatology at the Annual Meeting of the British Medical Association held at Cardiff, the results of such flooding of the blood with amino-acids were described as an asthma-prurigo symptom-complex. The group of symptoms described by these authors is made up of:

1. Cutaneous symptoms of the urticarial type.
2. Subcutaneous symptoms of the nature of angioneurotic oedema.
3. Respiratory symptoms of the asthmatic type.
4. Gastro-intestinal symptoms representing certain forms of vomiting and diarrhoea.
5. Nervous symptoms, including migraine and epilepsy.
6. Articular symptoms, including paroxysmal hydrarthrosis.

All these symptoms are, of course, never found combined in any one person suffering from excess of amino-acids in the blood. In infants and young children the symptoms are of rather a specialized form, but the point which I wish to emphasize is, that there are a large number of symptoms in children which follow as a result of the condition of hyperchlorhydria which cannot properly be classified as dyspeptic symptoms, but rather as those of liver inefficiency, and associated with an increase of amino-acids in the blood. I venture, therefore, once more to suggest that many or most of the results of hyperchlorhydria are due to too active a digestion rather than to a bad one.

Before I leave this subject I would like to say a few words with respect to the etiology of the very common condition of hyperchlorhydria in young children. It arises as a natural result of the modern practice of feeding infants with cow's milk with an excessive content of caseinogen, and it matters very little whether the milk is ordinary dairy milk or dried milk, for in both cases it is almost invariably given in a way which calls for a high degree of gastric acidity, owing to its considerable protein concentration.

Breast milk, or rather its protein content, can be digested by pepsin when comparatively little acid is secreted in the stomach, owing to its low buffering capacity, whereas cow's milk requires the addition of a large amount of acid, owing to the high buffer effect of its proteins and phosphates. Hence it follows that if infants can be fed on cow's milk without the development of vomiting and other gastric symptoms the amount of acid secreted must be very great, much greater than would have been the case if breast milk alone had composed their diet. Now, owing to various resources, such as the addition of sodium citrate to such milk dilutions (which prevents the coagulation of casein in a heavy clot with consequent vomiting), gastric tolerance can usually be acquired by infants, even though the milk is only slightly diluted or not diluted at all. This tolerance, with its natural concomitants hyperchlorhydria and a large appetite for protein foods, leads to overfeeding, overfeeding leads to overproduction of amino-acid bodies, and these in turn to hepatic failure and to a flooding of the system with unaltered amino-acids—hence the appearance of symptoms belonging to the "asthma-prurigo" syndrome.

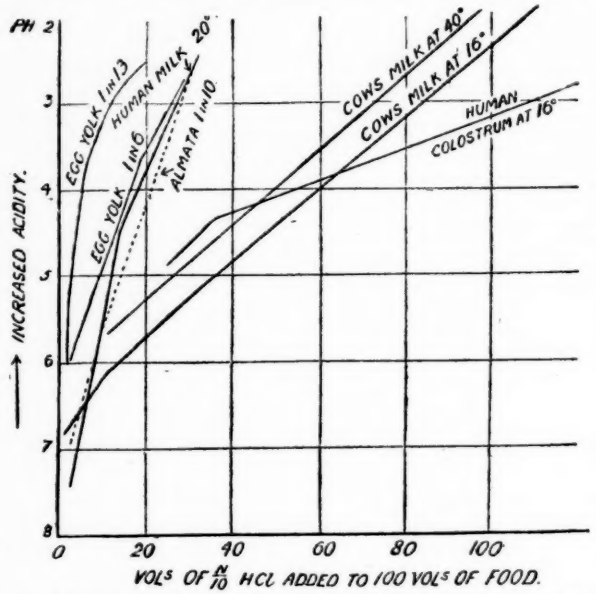
I do not wish to complicate the subject with unnecessary detail, but the accompanying graph, which has been constructed for me from figures supplied by Mr. Leslie J. Harris, D.Sc., working in the Nutritional Laboratory at Cambridge, and confirmed by Dr. Montague Maizels, working in our own laboratory at the Infants Hospital, shows the amount of acid which it is necessary to add to breast milk and cow's milk respectively to bring them up to the degree of acidity at which pepsin will effect the digestion of the protein.

From this graph it will be seen that while about 24 c.cm. of decinormal hydrochloric acid must be added to 100 c.cm. of breast milk to activate the pepsin and make it effective, between 40 c.cm. and 60 c.cm. must be added to cow's milk to obtain the same result. This difference is due to the high buffering effect of the cow's milk. From this it is clear that if an infant is fed on cow's milk instead of breast milk the acid-secreting cells of the gastric mucous membrane will tend to be more highly developed than in the case of breast-feeding, and a state of hyperchlorhydria will result, which will give an appetite for protein foods and cause the condition to "grow worse by what it feeds on."

Mr. Leslie Harris tells me that the buffer value of different foodstuffs may generally be represented with fair accuracy in the ratio of their protein content—that is to

* Delivered before the Cardiff Division, December 20th, 1928.

say, it makes very little difference what be the source of the protein, the actual amount of acid which must be secreted to digest it will be proportional to the actual quantity of protein present in the food. Hence cow's milk, with its high protein content and consequently high buffer value, will necessitate the secretion of large quantities of



In this graph the vertical line is graduated in accordance with its *p*H or degree of acidity: *p*H 7 is neutral point; 6, 5, 4, 3, and 2 represent respectively increasing degrees of acidity. The degree of acidity at which pepsin digestion is at its maximum is about 3 *p*H, although it begins at a lower point—that is, about 4 *p*H. The horizontal line marked 0, 20, 40, 60, 80, 100 indicates the volumes of decinormal (N/10) HCl added to every 100 volumes of food.

acid in the stomach, and will lead ultimately to a condition of hyperchlorhydria.

I hope it will not be assumed that I attach little importance to the dyspepsias which result from a deficient secretion of hydrochloric acid, owing to the fact that I have given special prominence to the condition of hyperchlorhydria.

One of the most important lessons I have learned from certain investigations[3] which we have made at the Infants Hospital is that the *p*H of gastric juice in infants shows an immediate fall with the onset of pyrexial and other constitutional symptoms. With a falling off in efficiency of gastric digestion, followed in all probability by similar falls in the efficiency in pancreatic and intestinal digestion, there results a considerable danger of undigested food entering the large intestine, which gives opportunity there for bacterial decompositions. Under normal conditions neither decompositions nor fermentations occur to any appreciable extent in the small intestine, for although the chyme in this part of the bowel is not absolutely sterile, it is so relatively, owing to the antiseptic influence of the acid gastric juice. Under conditions of hypochlorhydria the stomach does not exercise the same influence, and the chyme when it enters the small intestine is in a less sterile condition, and consequently more liable to fermentative and decomposition changes. Hence a condition of hypo-acidity in the stomach has a tendency to lead later to intestinal toxaemia.

Now although the poisonous products of decompositions and fermentations in the large and small bowel may lead to local disturbances, such as catarrhal enteritis, diarrhoea, colic, or flatulence, the more serious effects are, as in the case of hyperchlorhydria, remote and constitutional. The toxic products of such decompositions are absorbed and carried along the portal channels to the liver, where under normal conditions they are detoxicated and rendered harmless, in a manner comparable to the de-aminization which occurs in the liver in the case of the normal products of protein digestion. In the same way that the liver can fail in its de-aminizing functions from overwork, so also can it fail in its detoxicating functions with respect to the poisonous products which result from bacterial activity in the bowel.

Now when the liver fails in its detoxicating functions the unaltered toxins enter the systemic circulation and exercise their deleterious influences on the body as a whole, and on the cells of the central nervous system in particular. The symptoms of this condition are, therefore, largely nervous, and were it not that the resulting crises are accompanied by anorexia and vomiting, which preclude the further taking of food, the symptoms would be continued indefinitely until death terminated the scene. Thus we see that, both in hyperchlorhydria and hypochlorhydria, the symptoms are remote and not directly concerned with the function of the digestive system proper.

The primary symptoms associated with dyspepsia are vomiting, gastric pains, colic, wind, diarrhoea, and constipation—symptoms which represent disturbances of the motor and not the digestive functions of the alimentary tract. Almost without exception, however, motor symptoms are combined with the deferred constitutional symptoms. In infants it is the motor symptoms which mainly attract attention, whereas in older children and grown-up individuals the main symptoms are of the deferred constitutional type.

Types of Dyspepsia in Infancy and Early Childhood.

In the time at my disposal it would obviously be impossible to give any detailed account of all the common varieties of dyspepsia, nor, indeed, do I feel competent to classify them on any rational or comprehensive basis, but I think if I take certain representative types which in my experience are the most frequently met with in infancy and early childhood, I shall be able to give certain indications for the recognition of the many combinations of them with which we are often perplexed. The three types that I propose to take are as follows:

1. Vomiting, which occurs in infancy, and is due to overaction of the pylorus.
2. The coeliac type of diarrhoea, generally found in children between 1 and 6 years of age.
3. The chronic dyspepsias of early childhood (3 to 7 years), accompanied by periodic attacks of vomiting with acidosis (cyclic vomiting).

Type 1.

A considerable number of the infants under 3 months of age who are brought to the Infants Hospital for so-called indigestion have a history of vomiting suggestive of pyloric stenosis, and in quite a large proportion of such cases a diagnosis to this effect has already been made by the practitioner or welfare centre sending up the case. Although the surgical treatment by Rammstedt's operation is a most satisfactory and rapid means of alleviating the pyloric obstruction, I never refer such cases to the surgeon unless the symptoms refuse to yield to ordinary medical measures. The presence of a palpable tumour with visible peristalsis, even when these symptoms are combined with a history of intractable vomiting, is not, in my opinion, sufficient evidence of pyloric stenosis to justify an operation without further corroboration. I have had many cases with these symptoms in which the æ-ray examination after a bismuth meal has revealed rapid emptying of the stomach through the pyloric opening. In such cases, however, obstinate constipation is not one of the symptoms, as it is in true pyloric stenosis, and there is usually faecal matter as well as mucus in the motions. A bismuth meal is of the greatest help in distinguishing pyloric stenosis from simple overaction of the motor functions of the stomach, but I have known a bismuth meal pass quite normally through the pylorus and yet ordinary food be retained in the stomach until it is finally evacuated by vomiting. I regard lavage of the stomach some three hours after a feed as giving better evidence of the degree of motor efficiency of the stomach, or at least of the capacity of the stomach to empty itself, than a bismuth meal, although both, taken in combination, give still more reliable evidence. A wash-out of the stomach three hours after a meal will throw light on several points—the character and quantity of the residue, its degree of acidity or alkalinity, and the actual volumetric capacity of the stomach itself.

All these items of evidence pieced together are of great assistance in diagnosing the cause of the vomiting, and

in formulating an opinion as to whether medical or surgical means are indicated in the treatment.

In the vast majority of cases of vomiting in young infants investigated on these lines it is found unnecessary to have resort to surgical intervention. The cause is nearly always spasm and not true stenosis of the pylorus. This spasm almost invariably yields to ordinary medical treatment and appropriate feeding. Now I am sure I am not exaggerating when I say that in 99 per cent. of cases of persistent vomiting in young infants I have found a history of gross errors in feeding during the first few days or weeks of life, which has adequately and satisfactorily accounted for the setting up of pyloric spasm. There is almost invariably a history of overfeeding in cases of breast-fed infants, and of unsuitable feeding in the case of those artificially fed.

Spasm is very easily set up in the sensitive pyloric sphincter, the true function of which is to protect the delicate intestinal tract from unsuitable varieties or quantities of food. Spasm once set up in this sphincter during the early days of life, when it is learning its functions, is very apt to persist and continue even though unsuitable food is no longer to blame. A well-organized pyloric reflex—a reflex which protects the intestines from excessive quantities of semi-digested products, or from the irritation of totally undigested food—is one of the essential conditions of a good intestinal digestion. This pyloric reflex can be so disorganized by early mistakes in feeding that re-education may become difficult or impossible, and symptoms of dyspepsia persist during the whole of life.

Excessive acidity, or hyperchlorhydria, sometimes delays the emptying of the stomach, and when this occurs long-continued contractions of the pyloric muscles may lead to their hypertrophy. On somewhat comparable grounds subacidity of the gastric juice also leads to delayed emptying and long-continued contraction of the pylorus and hypertrophy. Inasmuch as the *p*H of the stomach is mainly dependent on the nature of the food, as previously explained, we see, too, how to a great extent the establishment of a normal pyloric reflex, and all that this portends, is dependent on a correct adaptation of the food to the physiological requirements.

Now let me state quite briefly how all the troubles which depend on a perverted pyloric reflex can be avoided. In breast-feeding the first secret is to regulate the quantity of milk which enters the stomach during the early days of life by the invariable employment of the "test" feed, a control which is particularly necessary when lactation is first established and when there are great dangers of flooding the stomach with an excess of milk.

In artificial feeding the desideratum is never to allow any variety of food to gain access to the stomach which can provoke any exaggerated or excessive gastric or pyloric reaction. The worst offender of all is cow's milk, no matter what be the degree of dilution. Personally I always use as the basis for the artificial feeding of newborn babies very thoroughly peptonized milk modifications. If this precaution is taken and the proper quantities are given at regular intervals, I guarantee that a case of so-called hypertrophic pyloric stenosis will never be met with; indeed, I will go so far as to assert that there will be no case of persistent vomiting of any kind.

I am often asked what is the ultimate fate of these so-called pyloric cases. As far as my experience goes, their fate depends on the degree of aggravation which has in the first instance brought about the spasm of the sphincter. Cases in which only slight defects in the feeding have produced spasm of the pylorus necessitating operation usually do badly, because a violent reaction to a slight degree of stimulation implies a very sensitive or spasmophilic state of the nervous system. I have noticed in such cases a general tendency in later life to increased sensibility to all forms of injurious agents—a sort of general anaphylaxis. Cases in which very gross liberties have been taken with the feeding during the early days of life, without producing very violent reaction—that is to say, reactions which are easily controlled by simple medical measures without resort to operation—usually do extremely well as soon as the vomiting ceases.

Type 2.

Now with respect to the "coeliac" type of dyspepsia, I will preface my remarks by saying that I do not regard the syndrome to which this name has been applied as a clinical entity or definite disease. I regard it merely as a combination of symptoms resulting from a variety of causes, mainly concerned, however, with an atrophic condition of the intestinal mucosa and atony of the intestinal walls, but sometimes due to an atrophic or undeveloped condition of the pancreas. The liver is certainly small in many of these cases, but this is better explained on the ground that the liver has little work to do owing to restricted absorption, than that it is small owing to innate or congenital causes. Moreover, the fact that this smallness of the liver itself disappears as recovery takes place also militates against the view that there is any congenital defect in the liver itself, or that coeliac disease itself is of congenital origin.

In nearly all cases of "coeliac" disease which have come under my notice there has been a history of good or normal progress up to a certain point, and that then there has been a crisis of some kind with diarrhoea and all the usual symptoms. Moreover, in the majority of these cases there has been a history of bad feeding—generally excess in the total quantity combined with deficiency of vitamins, which will explain all the subsequent events. But in whatever way these cases commence, there can be no doubt that if an atrophic and unhealthy condition of the intestinal mucous membrane exists, it can be perpetuated and aggravated by the treatment to which nearly all "coeliac" cases are subjected. Owing to the peculiar character of the stools, fats are almost universally eliminated from the diet, and consequently there is almost complete starvation as regards fat-soluble vitamins as well as fat itself; secondly, the consumption of fruit is vetoed because of the diarrhoea; and thirdly, vegetables and other cellulose-containing foods are forbidden because of their stimulating effect on peristaltic action. So-called "coeliac" disease, or at least a very large proportion of the cases which pass under this name, are associated with, if they are not definitely due to, dilated and atrophied intestines, and these two latter conditions are almost certainly caused by bad feeding, and very probably chiefly by want of vitamins. If this is so, no course of treatment could be worse than the one outlined above. It illustrates the therapeutic principle of "treating a bite with a hair of the dog that bit"—that is to say, a bad dietary is treated by a worse one. I find these cases always improve and generally become cured by acting on the principle that since little food can be absorbed little food must be given; and since the cause of the disease is mainly a want of correct balance in the dietary, the diet must be properly balanced, and contain a good representation of vitamins and mineral elements.

The presence of fat in the stools is no contraindication for the giving of fats. Fats in the form of insoluble soaps furnish, in the case of infants, their only source of roughage, and they serve the same purpose at any time of life. But in order that insoluble soaps may be formed out of the neutral fats consumed as food two conditions must be fulfilled. First, the fats must be "split," and secondly, there must be an adequate supply of calcium or magnesium with which the fatty acids can combine to form the insoluble soaps. Hence the stools of "coeliac" patients should be examined to see whether soaps are present or not. If either fatty acids or soaps are present it proves that the fats consumed are split, or digested, and that lipases are provided by the pancreas or other source. If only, or mainly, neutral fats are present in the stools, pancreatic preparations must be given independently to ensure the splitting of the fat, and in all cases a liberal supply of calcium should be provided to neutralize the fatty acids and so form insoluble soaps. For this purpose either prepared chalk or aromatic chalk powder must be given in full amount. One of the chief essentials in the treatment of these cases is unlimited patience and rigid adherence to the main principles in spite of obvious temptations. The dangerous time is when improvement begins to take place and appetite returns, for then there are strong inducements to relax rules and increase quantities. Since in

these cases little food can be absorbed, such sources of energy as are available must be conserved by keeping the patient thoroughly warm—in bed for preference—and by limiting exercise as far as possible.

The ultimate fate of the majority of "coeliac" cases is recovery, but even after what may be regarded as complete recovery there is always a tendency to recidivism, and some dilatation of the intestines usually persists.

Type 3.

As I have already indicated, the symptoms of certain forms of dyspepsia are so remote and general that they are liable to be attributed to tuberculosis or other constitutional trouble, rather than to actual defects in the digestive processes. The kind of case which I am about to describe is essentially of this character in its most typical form. It occurs in children between 2 and 16 years of age. It is chronic and remittent in character.

Children suffering from this form of dyspepsia are never really well, neither do they look well. They usually do not complain of feeling ill, but they have little energy, are easily tired, and have capricious appetites. There is often a continued temperature, usually under 100° F., sometimes lasting for many months. The complexion is sallow, with dark rims to the eyes, the tongue is dirty, and the breath tainted. There is irritability of temper, restlessness at night, or night terrors. The children often complain of abdominal pain or stitch in the side on running. The urine is usually thick, cloudy, or ammoniacal, and the stools are offensive. One of the most diagnostic and characteristic of the symptoms is the regular manner in which periodic attacks of biliousness supervene. These symptoms make up a clinical picture which must be perfectly familiar to everyone; but since all of them in combination never occur in one case the presence of even a few of them should put the practitioner on his guard.

All these symptoms can be rationally and satisfactorily explained on the assumption that the food consumed is not completely digested, owing either to its quality or total quantity, or to the relatively deficient powers of the digestive functions to cope with the task imposed upon them. Whatever may be the cause bringing about this failure of digestion the result is the same. Food which should have been digested normally by the normal enzymes of the alimentary tract remains undigested, or only partially digested, and becomes the pabulum of bacteria in the large bowel, and, as a consequence, the colon assumes an unhealthy condition, with offensive stools, flatulence, abdominal pains, and stitch in the side. This stitch in the side, so very characteristic of intestinal toxaemia, is, I believe, caused by the dragging of a heavy and sagging colon on its two points of support—its hepatic and splenic flexures—a dragging which is intensified by exercise in the upright position.

The toxic products of intestinal putrefaction are absorbed and carried to the liver, where for a time they may be effectually dealt with and rendered innocuous. Failure, however, is evidenced by offensive breath, dirty tongue, irritability, and other nervous symptoms. After varying periods of endurance the liver breaks down in function, and then the systemic circulation is inundated with a flood of unaltered toxic products, with intensification of the nervous symptoms, which take the form of vomiting, high temperature, migraine, or sick headache.

Under these conditions, and especially owing to the vomiting, the further consumption of food becomes impossible, and the liver obtains a much-needed rest. General recovery then takes place, the appetite returns, and the whole cycle of events is repeated with systematic regularity. The treatment of these bilious attacks, or cyclic crises, is usually by calomel or grey powder. This treatment, which as a rule gives immediately good results, is not really rational or far-seeing, for its efficacy is mainly due to stimulation of the liver, and not to removal of the cause. It acts, in fact, on the principle of "spurring on the tired horse," instead of taking the load off its back. The toxic bodies which directly bring about these breakdowns of liver function are due to the decomposition of nitrogenous foods, such as butcher's meat, fish, eggs, poultry, and milk. Hence it is obvious that the treatment should be concerned with a limitation of the intake of these particular foods. On the other hand, the fermentations which take place in carbohydrate and cereal foods lead to the formation of considerable quantities of acid bodies, such as acetic acid, butyric acid, lactic acid, propionic acid, and so on; these do not seriously tax hepatic function after absorption, but they do seriously drain the bicarbonate reserves of the blood and lead to those true conditions of acidosis which so often complicate the actual hepatic crisis. It should be clearly recognized that conditions of acidosis proper, in which there is a reduction of the alkaline reserves of the blood, should be distinguished from conditions of ketosis in which there is usually acetone in the blood, the breath, and the urine. A true ketosis seems to be one of the results of defective fat metabolism and hepatic insufficiency, and therefore it is scarcely to be wondered at that in these cases of periodic liver attacks due to intestinal toxaemia the condition should be complicated by a ketosis. In fact, I think it may be assumed with some confidence that in cases of intestinal toxaemia due to defective digestive processes there is generally a combination of all these conditions—hepatic crisis, ketosis, and true acidosis. The rational treatment of these cases involves three main principles of therapeusis: First, and mainly, the limitation of nitrogenous foods. Secondly, the limitation of all foods within the bounds of physiological requirements. Thirdly, the prevention as far as possible of intestinal decomposition by sterilization of the intestinal tract. Finally, by the prevention of conditions of true acidosis by the free administration of alkalines.

I hope that the three types which I have chosen to illustrate my thesis will help to show that if the digestive functions are imperfectly performed certain immediate, and, if I may use the term, proximal, symptoms, are liable to be produced which are mainly concerned with disturbances of the neuromuscular mechanisms that control the transit of food through the alimentary tract. These symptoms carry a warning note which, if attended to, should obviate the development of other, more serious and more distal, symptoms connected with the breakdown of liver function and with the poisoning of the system with various toxic substances.

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THE SIGNIFICANCE OF INTRADERMAL TUBERCULIN TESTS.

A PRELIMINARY NOTE ON AN INVESTIGATION IN PROGRESS BY THE MEDICAL STAFF OF THE WELSH NATIONAL MEMORIAL ASSOCIATION.

BY

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THE intradermal method of tuberculin testing was introduced by Mendel[1] and Mantoux[2] in 1908. For quantitative tests it has the advantage over the von Pirquet reaction in that the whole of the tuberculin used does actually enter the tissues. Happ and Casparis[3] consider that 0.01 mg. of tuberculin given intradermally corresponds to the usual von Pirquet test. While the von Pirquet test carried out according to the technique described by me in the *British Medical Journal* of February 2nd, 1924, appears to give results equivalent at least to 0.1 mg. of tuberculin intradermally, there can be no question but that the intradermal method is a much more sensitive test than the cutaneous one, and gives a greater amplitude in the elicitation of latent infection.

As compared with the subcutaneous tuberculin test, the intradermal method aims at a local, not a general, reaction, and it is an interesting fact that doses of tuberculin capable of giving rise to severe focal and constitutional reactions in infected persons can be given intradermally without exciting any appreciable response other than the local one at the site of inoculation. An excellent account of this and other forms of the tuberculin test was given by Burhans[4] in 1927, and should be consulted by all interested in the subject.

At a meeting of the medical staff of the Welsh National Memorial Association in December, 1927, it was decided to test out the intradermal method on various types of tuberculous patients with a view to arriving at a clearer idea of its significance in relation to the disease. As director of research to the association it has fallen to my lot to draw up a scheme of investigation, co-ordinate the work, and analyse the results; but nearly all the actual tests have been carried out by my colleagues of the medical staff of the association, and in particular by Drs. D. W. Fenwick Jones, D. H. Mills, and L. R. Clark; and for all this help I desire to express my gratitude. I also wish to thank Dr. R. A. O'Brien, director of the Wellcome Physiological Research Laboratories, through whose kindness a very reliable sample of old tuberculin (O.T. No. 1154, B. W. and Co.) was made available for use in all the tests now recorded. This tuberculin was put up by me in the following strengths, and supplied, as required, to the medical staff: 1 in 10,000, 1 in 5,000, 1 in 1,000, and 1 in 500. The diluent used was sterile normal salt solution to which 0.5 per cent. of carbolic acid was added. Medical officers were warned that diluted tuberculin is liable to deteriorate, and that the phials should be regarded as unreliable three weeks after the date of issue. The inoculations were given intradermally, a volume of approximately 0.1 c.cm. of the appropriate dilution being injected by means of a whole-glass hypodermic syringe with a very fine accurately fitting needle. It was found that needle No. 214, B. W. and Co., was suitable for the purpose. Special precautions were taken to avoid too deep a puncture. The escape of tuberculin into the subcutaneous areolar tissue vitiates the test and exposes the patient to the risk of a general reaction. The site chosen was usually the outer surface of the arm a few inches below or above the elbow-joint. No injection was considered satisfactory if it did not raise a circumscribed wheal at the point of inoculation. It was decided not to give "control" injections of sterile diluting fluid, though these are advocated by Burhans.

The number of inoculations to which patients will submit is limited, and it is my experience that "reactions" after such control inoculations are so very rare as to be practically negligible. In the majority of cases a positive reaction with any given "dilution" was accepted as a proof that the patient concerned would be positive with the stronger preparations—that is, a patient reacting to 1 in 10,000 was assumed to be positive also to 1 in 5,000, 1 in 1,000, and 1 in 500. That this assumption, which underlies the percentages in the following records, is correct, was proved by the results in those few patients to whom all four strengths were given. In these it was found that the intensity of the reaction increased regularly with each increase in strength of tuberculin.

Comparison of Reaction in Healthy Adults and Tuberculous Patients.

A group of 46 healthy male adults residing in London was tested by me according to the technique above described except that only two dilutions of tuberculin—1 in 5,000 and 1 in 1,000—could be used. To these healthy volunteers, who desire to remain nameless, my sincere thanks are due. The results in this healthy group were compared with the results in 150 tuberculous patients, a miscellaneous group including adults and children, males and females, pulmonary and non-pulmonary, under treatment by the association. The findings are compared in Table I.

TABLE I.—*Tuberculin Reactions in the Healthy and the Tuberculous.*

Tuberculin Dilutions.	Percentages Positive.		Average Size of Reaction in Centimetres.*	
	Healthy.	Tuberculous.	Healthy.	Tuberculous.
1 in 10,000		37		0.5
1 in 5,000	80	61	1.30	1.0
1 in 1,000	93	70	2.07	1.4
1 in 500		74		1.6

*All the reactions in the "healthy" group, but only 37 reactions in the tuberculous group, were measured.

It will be apparent from the above table that, both in the percentages of positives and in the extent of the raised area of reaction, the healthy persons gave results over 20 per cent. higher than the persons actually suffering from tuberculosis. This finding raised the question of the relation, if any, of tuberculin sensitivity to the severity of the disease; and the above miscellaneous group of patients was now analysed according to clinical type.

Comparison of Pulmonary and Non-pulmonary Cases.

Pulmonary tuberculosis is, on the whole, more severe than non-pulmonary tuberculosis; so a comparison was made between 64 pulmonary and 83 non-pulmonary patients, the latter constituted, for the most part, of cases of bone and joint tuberculosis.

TABLE II.—*Tuberculin Reactions in Pulmonary and Non-pulmonary Cases.*

Tuberculin Dilutions.	Percentages Positive.		Average Size of Reaction in Centimetres.*	
	Pulmonary.	Non-pulmonary.	Pulmonary	Non-pulmonary.
1 in 10,000	26	45	0 50	0.40
1 in 5,000	54	70	0.80	1.38
1 in 1,000	66	77	1.30	1.24
1 in 500	72	78	1.58	1.60

*Only about 15 patients in each group were "measured" in all dilutions.

Here again the less severe and non-pulmonary group gives higher percentages, in all tuberculin dilutions, than the more severe phthisical group, the average size of the reaction, however, being about the same in both groups. Both groups included children and adults, but the proportion of children in the non-pulmonary group was greater. The groups were therefore reshuffled according to age.

Comparison of Tuberculous Adults and Children.

Some of the records did not show clearly whether the patients were children or not, so the groups are smaller through the exclusion of uncertain cases—33 adults and 91 children.

TABLE III.—*Tuberculin Reactions in Tuberculous Adults and Children.*

Tuberculin Dilutions.	Percentages Positive.		Average Size of Reactions in Centimetres.*	
	Adults.	Children.	Adults.	Children.
1 in 10,000	24	40	0.33	0.60
1 in 5,000	54	64	0.80	1.10
1 in 1,000	75	70	1.20	1.50
1 in 500	85	72	1.33	1.80

*Only about 15 patients in each group were "measured" in all dilutions.

The above table suggests that with the higher dilutions tuberculous children react better than tuberculous adults; it will be noticed that the average size of the reaction is slightly greater in children with every strength of tuberculin employed. In this connexion a note by Dr. D. W. Fenwick Jones of the North Wales Sanatorium is of interest. "All babies—surgical—under five," he writes, "reacted well to 1 in 10,000 tuberculin," the reaction appearing late, "only on the sixth day." These infants were further tested with 1 in 5,000, when "they all reacted well on the third day."

This high reactivity of tuberculous infants and children is of importance, especially in view of the fact that non-tuberculous children in the lower age groups differ from healthy adults in giving but a low percentage of "positives." In 28 children "under observation," and without any definite evidence of tuberculous disease, only 7, or 25 per cent., reacted to the intradermal tuberculin test.

Analysis of "Classified" Cases of Pulmonary Tuberculosis.

With the idea, above mentioned, of comparing the tuberculin sensitivity in the more severe and the less severe types, an attempt was made to have the pulmonary cases classified on a system described by me[5] in 1924; but unfortunately only a very small number of cases were so classified amongst the tested patients. The results are given for what they are worth, but it is recognized that the numbers are too small to be satisfactory. All the classified cases were in the third stadium of phthisis, that is to say, suffering from advanced disease. Twenty were of the "recrudescent" or "C" type, twelve of the "initial" or "A" type. The results of the tuberculin tests are given in the following table.

TABLE IV.—*Tuberculin Reactions in "A" Initial and "C" Recrudescent Cases.*

Type of Case.	Total No. of Cases.	Percentages Positive in each Dilution.			
		1 in 10,000.	1 in 5,000.	1 in 1,000.	1 in 500.
"A"	12	16	33	50	50
"C"	20	15	45	65	90

Admitting that the numbers are too small for a conclusive comparison, the tendency seems to be in the direction of more marked reactions in the more favourable "recrudescent" group. The classified cases were separated into fresh groups for consideration from another point of view, according to the classification of Inman, who divided tuberculous cases, in terms of their degree of auto-inoculation as indicated by their temperatures, into "resting febrile," "ambulant febrile," and "ambulant afebrile." Of the 32 patients, 20 were "resting febrile" and 12 "ambulant afebrile." It should be noted that, though the numbers are the same, the cases divided up quite differently from the divisions in Table IV, nearly all the "A" cases being in the "resting febrile" group.

TABLE V.—*Tuberculin Reactions in "Resting Febrile" and "Ambulant Afebrile" Cases.*

Type of Case.	Total No. of Cases.	Percentages Positive in each Dilution.			
		1 in 10,000.	1 in 5,000.	1 in 1,000.	1 in 500.
Resting febrile ...	20	14	38	62	81
Ambulant afebrile	12	16	58	83	100

Again it must be recalled that the numbers are very small; but the figures suggest that the patients sufficiently resistant to hold their temperature in control are also the patients with a sharp power of reaction to tuberculin.

Summary and Conclusions.

It would seem from the above observations that tuberculin sensitivity is at its height in healthy but infected adults, and is still high in those tuberculous persons in whom the disease is taking a relatively benign course, and that it tends to diminish with the gradual deterioration of health consequent on advancing tuberculosis. Whether this fall in sensitivity is the result of the production of anti-bodies capable of neutralizing tuberculo-toxin, or whether it is due to a gradual loss of the power of breaking down tuberculin into its toxic derivatives remains uncertain. The fact that long-continued tuberculin therapy may lead to a toleration of tuberculin, with a corresponding clinical improvement, supports the possibility of a "neutralization" factor, at least in favourable cases, while the fall of tuberculin sensitivity in the advanced stages of non-tuberculous diseases, as well as in the terminal stages of tuberculosis, speaks for a gradual deterioration in the power to deal with tuberculin or to react to it. It may be that the loss of tuberculin sensitivity is due not to one but to several factors, and that different factors may be operative in inhibiting the reaction at different stages of the disease. While it appears certain that a very low percentage of "positive" reactions in any given community goes with a marked racial and individual susceptibility to tuberculosis, it would be a mistake to assume that a high percentage necessarily denotes the possession of a good resistance. The fact that tuberculous children tend to react as well as, or better than, tuberculous adults is against this, since children exhibit a greater liability than adults to generalized tuberculous lesions. It should be recalled, in this connexion, that artificially infected guinea-pigs, though doomed to progressive disease and a fatal termination, almost always show a marked tuberculin sensitivity in the third or fourth week after infection.

A good tuberculin reaction, then, is no guarantee that the patient will be able to control his tuberculosis, nor is a high percentage of reactions, even to so small a quantity of tuberculin as 0.1 c.cm. of a 1 in 10,000 dilution, or 0.01 mg., to be interpreted as meaning that the tested group is necessarily resistant to the evolution of the disease.

With regard to the loss of sensitivity during the progress of a tuberculous infection, the findings of Henry Stuart Willis[6] suggest that, in guinea-pigs chronically infected by inoculation with an attenuated strain, sensitivity is gradually lost, but may be rapidly "whipped up" again by a reinfection. This type of fall in sensitivity probably depends on a "locking up" of the tuberculous foci in the course of spontaneous cure, and is to be distinguished from the "wearing out" of sensitivity in the terminal stages of tuberculosis; the latter being of serious prognostic import.

It is to be noted that no concentrations stronger than 1 in 500 tuberculin were used. The steady rise in the percentages of "positives" with the stronger concentrations justifies the belief that, as found by Happ and Casparis,[3] it should be possible to obtain a positive result in every case, no matter how far advanced, if still stronger tuberculin were given intradermally. In such attempts, however, the possibility of dangerous constitutional reactions should not be lost sight of.

The fact that much larger doses of tuberculin can be tolerated without a general reaction by the intradermal than by the subcutaneous route should recommend the Mendel-Mantoux method to those using tuberculin in treatment.

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PHYSIO-THERAPY IN THE TREATMENT OF CHRONIC RHEUMATISM.

BY

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THE term "chronic rheumatism," as used somewhat vaguely to cover a number of conditions affecting the joints, muscles, and other skeletal structures, is unfortunate, because it presupposes that these have a pathology identical with that of acute rheumatic fever, a disease which attacks children most frequently, and whose chief ravages fall on the heart. Certain symptoms characteristic of acute rheumatic fever are indeed present in at least one form of chronic rheumatism, but the facts as a whole do not warrant the assumption of a common origin to all forms of rheumatic disease.

The chief lesson to be drawn from modern investigation of rheumatic conditions is the fact that their causes are multiple, just as their manifestations are various, and that each group of cases must be treated according to its individual requirements. The recognition of the important part played by focal sepsis as an etiological factor was a

considerable advance in knowledge, but it is now realized that rheumatism may result from several kinds of toxaemia other than bacterial. There is, for example, the intestinal type, which responds favourably to a lowered calorie intake of food and to high colon lavage; there is the endocrine type, which benefits by administration of thyroid extract; and there is the gouty type, which can be attacked on chemical lines. In many cases clinical differentiation is difficult or impossible; in others more than one etiological factor is operative.

THE ETIOLOGY OF CHRONIC RHEUMATISM.

The theory to be elaborated in this paper is that chronic rheumatism is an allergic state, the antigens producing it being bacterial toxins, the products of bacterial action, or incompletely metabolized protein derivatives with which bacterial action is in no way concerned. Sensitization to any of these antigens may be progressive or capable of periodic recrudescence over long periods of time. The constriction of the smaller blood vessels which results from this sensitized state leads to devitalization, damage, and finally destruction of tissues which even normally have a poor blood supply—for example, fibrous, ligamentous, and articular structures. Such vaso-constriction has been clearly shown to be an integral part of the rheumatic state, and caused probably by the exhaustion of the endocrine-sympathetic system invariably associated with allergy. In some forms of rheumatic disease substances toxic to the above-named tissues may, in addition, accumulate in them and produce inflammatory changes resulting in disease of the proliferative type—for example, rheumatoid arthritis. When destruction results from lack of nutrition the more slowly progresaive or atrophic form of the disease results—for example, osteo-arthritis. The various etiological factors must be considered separately.

Infection.

Infection causing arthritis and other forms of rheumatism may be specific—that is, gonococcal, syphilitic, or tuberculous—and careful examination is necessary to exclude these conditions. In their absence it has been customary to call the case one of ordinary rheumatism, by which a subtle imputation is tacitly made against some form of streptococcus. This organism has never been satisfactorily demonstrated in the joints or other structures of rheumatic patients; its presence has been inferred from the frequent discovery of an obvious infective focus, and the occasional amelioration that has followed its eradication. Furthermore, not only is severe rheumatism often found in persons in whom infection is relatively insignificant or apparently absent, but gross sepsis of long standing may be found in patients completely free from rheumatism. Streptococcal infection is responsible, therefore, for only a certain proportion of cases, and, as one would expect, these conform roughly to a certain clinical type—namely, a proliferative polyarthritis of the smaller joints, which frequently runs an acute febrile course, and results in swelling, deformity, and ankylosis.

Intestinal Toxaemia.

This undoubtedly underlies a definite group of chronic rheumatic cases. Patients in this group usually present a toxic appearance; they are unduly pigmented, their musculature is lax and flabby, they are easily fatigued and habitually constipated. It is impossible to be certain whether the antigen concerned is some abnormal intestinal bacterium, or a normal inhabitant of the gut which has acquired pathogenic characteristics, or some product of protein decomposition. But patients in this group, which includes many suffering from recurrent lumbago, sciatica, perineuritis, and fibrositis, respond most favourably to reduction and adjustment of diet and to high colonic lavage.

The Endocrine Factor.

The clinical resemblance between patients suffering from thyroid disorders and those with certain rheumatic diseases leaves no doubt that the relationship between the two conditions is often a close one.[1] Patients with myxoedema frequently suffer from arthritis, and still more frequently are subject to vague aches and pains of a fibrositic nature. Their skin, like that of chronic rheumatic patients, is cold and dry, but subject to periodic attacks of excessive sweating. Chronic rheumatic subjects in this group benefit by taking thyroid extract. On the other hand, many of the more acute cases of systemic rheumatic disease resemble in some respects Graves's disease, in which the skin is hot and flushed, and sweating is profuse. It would seem as though the capillary constriction or dilatation is brought about by some disturbance of the endocrine-sympathetic system, upon which the antigen has a primary effect. Less marked is the effect of hypo-ovarian secretion in rheumatic disorders—a fact not explained by the mere excess of weight these patients sometimes have to carry. The late results of ovariotomy and even hysterectomy are serious, and should always be considered before such operations are undertaken. A similar, though usually temporary, disturbance is often encountered at the menopause.

Osteo-arthritis.

This condition, as a result of the doubt recently thrown upon the theory that it is infective in origin, has come to be regarded as a disease *sui generis*. It attacks, for the most part, the larger joints of older people, and is more common in males than in females. The immediate pathology would appear to be a simple necrosis of the tissues concerned, following prolonged reduction of local blood supply. The disease often remains stationary, and then, after a latent period, progresses. Allied to it, and often occurring coincidently, is true gout. The close relationship of gout with asthma and allied skin affections, and its paroxysmal nature, support the theory that it is anaphylactic in origin, being due to specific hypersensitiveness to certain nucleo-protein containing foodstuffs.

Some Predisposing Factors.

It is now necessary to consider what are the factors which predispose to the production of the allergic state. Among these climate has an important place. Stimulating and invigorating climates tend to produce in the people that live in them the greatest degree of physical and mental fitness.[2] Chronic ill health, particularly rheumatism, may, however, result from attempts to avoid the various discomforts that are necessarily associated with such climates. Sedentary lives, lack of exercise, badly heated and ventilated rooms, and faulty dietetic habits are the harbingers of constipation and of sepsis. Inadequate and deleterious products accumulate in the tissues; the skin, wrapped up in clothing, is denied its natural stimulation by sunlight and fresh air, and fulfils only inadequately its various physiological functions.[3] In such circumstances inclement temperature, humidity, and climate become the masters and not the servants of the chronic rheumatic subject. Individual idiosyncrasies in relation to certain localities are also met with, just as in asthma.

All subjects of chronic rheumatism are easily fatigued, and their condition is invariably aggravated by prolonged mental and physical strain. The underlying factor is probably exhaustion of the endocrine-sympathetic system, and here the analogy with thyroid disorders is again apparent. A structure strained by work or exercise will be the first to show this rheumatic tendency—as, for example, in coal-heaver's shoulder or tennis elbow. A fracture which would heal quickly and completely in a normal person will leave pain and stiffness in the rheumatic subject, and the immobilization necessary for its treatment will further aggravate the condition from which he is suffering. Rheumatism is often found in various forms in different members of a family, and a tendency is transmitted from generation to generation.

TREATMENT.

The treatment of rheumatism resolves itself into two problems: (1) the arrest and cure of the disease; (2) the correction of its results.

In streptococcal cases it is important to remove any obvious sepsis without delay, but with care, especially in subacute cases, to avoid a severe reaction, such as might follow, for instance, the wholesale extraction of teeth in

pyorrhoea. Preliminary protein shock treatment is of advantage in such cases. In many patients removal of obvious sepsis is not followed by amelioration of symptoms—a fact which may be explained on the assumption that the organism is still present in various parts of the body in sufficient numbers to produce recurrent resensitization. In the absence of obvious sepsis, the teeth, tonsils, appendix, gall-bladder, and other possible sources of infection should be allowed to remain *in situ*, and attention directed to increasing the patient's general resistance, and to preventing further immobility of the invaded structures. While valuable time is being wasted in a vague search for some hypothetical source of infection, permanent stiffening, adhesions, and other damage may ensue which could have been prevented if treatment had begun earlier.

It is supremely important, particularly in cases of septic origin, accurately to gauge the acuteness or chronicity of the condition—that is to say, the resistance of the patient and his reaction to treatment. For whereas in acute cases treatment involves not only specific measures and good nursing, but absolute rest, it is yet important to commence active treatment as early as possible with the object of preventing further extension of damage in the tissues concerned. It is often most difficult to decide when active treatment may be initiated, but valuable assistance may be obtained from the blood sedimentation test. This test, though in no way specific, depends upon the increased rate of sedimentation of red blood corpuscles which occurs, especially in inflammatory and exudative conditions. If a high reading is recorded the case may be regarded as acute, and palliative measures adopted accordingly. If the reading is within or only slightly above normal limits the case may be regarded as chronic and demanding immediate active treatment. Readings taken at intervals throughout the course of the disease give an accurate index of progress under treatment and of prognosis.

Physio-therapy and Spa Treatment.

Treatment of rheumatism on purely physical lines is administered at various spas under such dignified names as "hydrology" and "balneology." Sometimes a chemical constituent of the water, such as sulphur or potassium, is claimed as a therapeutic omnibus. Sometimes a radio-active substance is found, though its presence may be demonstrable in quantities to appeal only to the homoeopathist. Again, the water may issue from the ground under pressure, and the bubbles from liberated gases claimed to possess peculiar therapeutic properties. Yet these spas undoubtedly do good, and it is important to decide what are the beneficial therapeutic measures common to them all. Briefly they appear to be as follows: (1) the use of heat generally, with the production of a temporary artificial pyrexia, and, locally, combined with massage, movement, and manipulation; (2) stimulation of the skin; and (3) elimination of waste products.

The baths employed in spa treatment for the purpose of applying heat may consist of hot water at varying temperatures, or of hot and cold water alternated; of water vapour of varying density, humidity, and temperature; and of dry hot air. A condition of hyperthermia quickly follows the immersion of the body in a hot bath because loss of heat by evaporation is prevented. In the much hotter dry air of the Turkish bath the body temperature rises hardly at all, because the amount of evaporation is considerable. Vapour baths occupy an intermediate position, and, on the whole, their use has met with the best results in rheumatic cases. Heat produces a general vascular dilatation with transudation of fluid into the tissue spaces. Possibly, also, at normal or subnormal temperature, deleterious substances enter into chemical combination with the tissues and may be dissociated from them only when pyrexia is induced. Such has been shown to occur with lactic acid,[4] and some rheumatic symptoms, particularly pain, may be due to the excess of acids locally. Deviation of the acid base equilibrium in the acid direction is, however, not constant in rheumatic diseases. In acute rheumatic fever, high temperature, accompanied by profuse sweating, may be regarded as a healthy reaction to the disease and Nature's method of eliminating acids and other harmful products. The subject of chronic rheumatism suffers from subnormal temperature and an inactive skin, in which the functions of elimination and oxidation are in abeyance. The beneficial effects of a vapour bath may be due to the fact that it produces both an artificial pyrexia and increased sweating.

Stimulation of the Skin.

It is a common clinical observation that the skin of the rheumatic subject is deranged. It has, for example, a pungent odour, and the sweat glands do not function properly. Lewis,[5] who in his recent observations throws much light on the subject of the reaction of the skin to various stimuli, describes a triple response comprising local dilatation of minute vessels, widespread arteriolar dilatation, and increased permeability, resulting in transudation of fluid into the tissue spaces. He draws attention to the remarkable similarity of the reactions produced when the skin is stimulated and when it is injected with histamine. This similarity he explains by the liberation from the skin of some histamine-like substance, to which he has given the name H-substance. He shows, further, that when the stimulus is applied to the heated skin this substance is liberated diffusely over a wide area, and all the vessels are involved in its removal.

There is no reason to suppose that this H-substance is different from that liberated in conditions of extensive tissue damage and producing "surgical shock." The general extravasation of plasma into extravascular tissue spaces, symptomatic of this condition, tends to wash away injurious substances, and thus acts essentially as a protective mechanism. The skin of the normal subject, especially when he takes sufficient exercise, receives enough daily stimulation to evoke this mechanism. If, then, we assume that the skin of the rheumatic subject is at fault we have a ready explanation of the good results obtained by spa treatment, and of the fact that it matters little what form of skin stimulation is adopted.

The most satisfactory results are obtained when substances producing skin irritation are added to the hot baths in which rheumatic patients are immersed. Sometimes these materials, which include pine, menthol, turpentine, etc., are so irritant that before immersing the patient it is necessary to cover the sensitive parts with vaseline. When the patient is taken from the bath, the temperature and duration of which are regulated according to his condition, he is covered in hot blankets and allowed to sweat profusely for one or two hours. The treatment is strenuous and should only be carried out after a careful clinical examination of the patient.

Elimination of Waste Products.

Every cell in the animal organism requires water, not only to assist in its constant metabolic changes, but to carry away the waste products of metabolism. This action of water is particularly important in rheumatism, but it is astonishing how little water many rheumatic patients drink. In the group attributable to alimentary toxaemia washing out the large bowel by high-colon lavage often effects excellent results. The treatment should be undertaken only by skilled persons, otherwise the tube will tend to curl up in the rectum and no fluid pass into the pelvi-rectal fold. The process should be repeated until clear water is returned, and an even pressure of about two pounds should be maintained; occasionally antiseptics—potassium permanganate, for example—may be added to the water with advantage.

Local Treatment.

Here again heat is the main essential. The objectives, however, are different and a greater heat intensity is usually required. Inhibition of muscular movement in the affected limb tends to retard the normal blood flow essential for the physiological exchange of oxygen and carbon dioxide and the removal of waste products. Heat helps to produce the required hyperaemia. Furthermore, tissues expand under the influence of heat and become more malleable. There are many conditions in which muscular

fibres are found to be in a state of spasm, movement of any kind being accompanied by pain. Such is the case in true lumbago. If such muscle fibres happen to be traversed by nerves, as, for instance, in the lower cervical region, these nerves become trapped and neuritis results. In such conditions the tissues when heated become more amenable to the influence of massage and movement. The principle underlying the treatment of all chronic rheumatic conditions is the same—namely, to soften the tissues by heat, and, later, to follow this by massage and movement. Force should not be used in the early stages, and then only gradually applied in accordance with the needs of the particular condition. Nerves are sometimes forcibly stretched under an anaesthetic, but even when immediate relief appears to have been achieved, adhesions resulting from such drastic treatment often reproduce the condition even more severely than before.

Methods of Applying Heat.

Heat is commonly applied by conduction. A water fomentation or a dry pad, electrically or otherwise heated, is employed. The temperature at which the sensation of heat gives place to pain is in the neighbourhood of 115° F., and it is therefore not possible to exceed this temperature at the skin surface. If the part is in any way inflamed even this degree of heat cannot be applied. As, however, heat applied by conduction does not penetrate to any appreciable extent, being carried away by the superficial circulation, its use should be confined to the treatment of inflammatory conditions of the skin and immediately subjacent tissues.

Secondly, heat can be applied by radiation. The rays of the violet end of the visible spectrum are converted into heat directly on the skin surface and have very little penetrative power. As the wave-length increases, the rays, before being converted into heat, are able to penetrate to an increasing extent, the luminous and particularly the red waves being employed when a penetrative heating effect is required.[6] In the infra-red region the heat rays again diminish in penetrative power, and are consequently of less value for this purpose. Radiation, though not a good means of applying heat for the end in view, is better than conduction.

Diathermy is used when it is required to concentrate heat in deeply situated tissues. The modern diathermy apparatus produces oscillations of a very high frequency, varying from 800,000 to 1,000,000 per second. The diathermy current has no ionizing effects in the tissues, and as nerve endings cannot appreciate stimuli repeated with a frequency of more than 10,000 per second, it cannot produce sensations, painful or otherwise. A much stronger current can therefore be used than could otherwise be tolerated. This current, passing rapidly to and fro, generates heat in the tissues themselves. The temperature depends on the grouping of these tissues in relation to the path of the current, and on the relative richness or poverty of their blood supply.[7] All of them will, however, be heated to a certain extent. Various precautions have to be taken so as to eliminate the possibility of burns. The pads must be placed at right angles to each other, the parts treated lying directly between them, so that the current may traverse them directly. Such details as the amount of current, the length and frequency of exposures, and the position and type of electrodes can be gauged only as the result of experience.

The value of electrical currents, other than diathermy, in the local treatment of chronic rheumatic diseases is doubtful. It is unlikely that the redistribution of tissue ions caused by the passage of a direct current has any therapeutic effect. Also it is difficult to ascribe any useful purpose to ionic medication; drugs, such as iodine, thus introduced into the system are carried away by the superficial circulation before they can penetrate to the required depth. Beneficial results are sometimes obtained by the use of alternating currents in very chronic cases, and are due probably to their tonic effect upon the wasted muscles, and not to any action upon the disease itself. Sinusoidal baths are perhaps the most useful for this purpose.

Summary.

An attempt has been made to summarize the various aspects of the treatment of "chronic rheumatism." Such treatment must necessarily follow a complete investigation in all cases, and must proceed along systematic lines. Drugs should be used, but not abused, particularly in the relief of pain. Members of the phenazone and exalgin groups, and salicylates, are the most valuable. Iodides probably owe their reputation to their effect in cases associated with endocrine disturbance, but are not so helpful as thyroid extract. Stock vaccines and other protein injections act by producing protein shock and are useful in certain cases. Autogenous vaccines would not appear to have any special advantages. It is suggested that chronic rheumatism is an allergic state produced by a number of widely different antigens in a susceptible subject. For this susceptibility the habits and necessities of modern civilization, especially inadequate stimulation of the skin, are largely to blame. Physio-therapy owes much of its success to the rectification of these errors.

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THE DISEASE KNOWN AS MINERS' NYSTAGMUS.*

BY

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For close upon a century coal miners have been known to suffer from ocular trouble associated with their work; in 1831 C. Turner Thackrah wrote in reference to colliers:

> "Their eyes, from swelling of the lids, appear small, and are affected with chronic inflammation and intolerance of full light, and many, after a few years' trial, are obliged . . . to leave the mine."

Nystagmus as a definite disease was first described by Decondé in 1861, but little attention was given to the question until about 1875, when reports, though still somewhat isolated, began to appear in British and Continental medical journals, and were followed by a prolonged and heated discussion as to the causation of the oscillation of the eyeballs. This controversy is still unsettled, and will be carefully avoided in this paper, which proposes to deal with "the disease known as miners' nystagmus whether occurring in miners or others, and whether the symptom of oscillation of the eyeballs be present or not," as notified in the schedule of the Workmen's Compensation Act of 1906 on July 30th, 1913. It may be noted that the earlier observers regarded the disease as a local myopathy of the elevator muscles of the eyes or the result of excessive accommodation, whereas the modern tendency is to refer it to a general fatigue of the whole oculomotor system, or a general neurosis with special manifestations in the oculomotor apparatus.

Since 1907, when miners' nystagmus was added to the schedule of industrial diseases in the Workmen's Compensation Act of 1906, the number of notified cases has steadily risen, and when the definition of the disease was altered in 1913 the Home Office statistics showed a sharp rise in the rate of incidence of nystagmus from 0.16 to 0.26 per cent., and the latter rate has been maintained since. These numbers refer to cases of invalidity from the disease, and must not be confused with the rate of prevalence of nystagmus in miners. Oscillation of the eyeballs, it has been estimated, may be found in about 25 per cent.

* Read at a meeting of the Midland Ophthalmological Society, December, 1928.

of working miners, but something like 99 per cent. of them are unaware of the condition. It is obvious, therefore, that oscillation of the eyeballs *per se* need not be a cause of invalidity, and when a miner who has shown oscillations becomes incapacitated for work some new factor is introduced, and this in itself, or in addition to the oscillations, gives rise to working incapacity. There is no doubt that severe oscillations in the primary positions of the eyes, when mere standing up causes giddiness and marked unsteadiness or reeling, would be regarded as a cause for total disability. In many cases, however, when oscillations are difficult or impossible to elicit, subjective symptoms are apparently more distressing than in the cases with severe oscillations.

It would appear that there is no strict relationship between the degree of oscillation and the severity of such subjective symptoms as giddiness, headaches, sleeplessness, photophobia, night-blindness, and mental depression. In fact, these symptoms often appear to increase as the oscillations diminish. During the last few years these "nervous" symptoms have increased enormously in frequency, perhaps in intensity, and at the present time they may be said to dominate the whole picture of miners' nystagmus. From notes of cases of miners' nystagmus referred to me for compensation purposes, I find that during the years 1910–19 about 5 per cent. only presented anxiety neurotic symptoms of any degree, whereas among those examined during the period 1919–24 29 per cent. presented very definite symptoms of the kind. The figures with regard to giddiness and headache are still more striking.

Giddiness complained of:

1910–19	... ...	50 per cent. of cases examined.
1919–24	... ...	78 per cent. ,, ,,

Headache complained of:

1910–19	... ...	30 per cent. of cases examined.
1919–24	... ...	70 per cent. ,, ,,

What is the explanation of this change, which amounts to a definite alteration in type, if not to a new disease? I think there can be little doubt but that the widening of the definition of miners' nystagmus in 1913 is responsible for this change in type, as well as for the extraordinary increase in the number of cases certified. This development is in no sense to be regarded as due to increase of malingering; in fact, deliberate malingering appears, from the same records referred to above, to be less frequent. From 1910 to 1919 it was about 8 per cent.; from 1919 to 1923, about 4 per cent. The development must be regarded as the inevitable result of making it an easy matter (by the Act) for the neurotic to escape from a psychologically intolerable position caused by failure to adapt himself to his environment.

The nervous symptoms referred to are headache, giddiness, photophobia, night-blindness, or rather a fear of going about in the dusk or midlights, sleeplessness, with distressing dreams during the short periods of sleep, amblyopia, perhaps contraction of visual fields, mental depression, and often a change of character, sometimes passing to definite mental illness and even suicidal tendencies. When these symptoms are met with we find tremors of the head and limbs, lid spasm, and endocrino-sympathetic disturbances, such as disordered action of the heart, vaso-secretory disturbances, etc. These symptoms differ in no way from the symptoms of psychoneurosis met with in other spheres and among other members of the community, and it is obvious that a miner might be incapacitated by such a neurosis without showing any oscillations of the eyeballs at all. Hence the justification for the alteration in the terms of the Act in 1913. It is a fair question to ask, What is the relation of the nystagmus to the psychoneurotic symptoms? I am inclined to think that it acts as one of the exciting factors, but an important one. The coal miner, in this country at any rate, seems to be peculiarly predisposed to the development of a psychoneurosis owing to the nature of his work, his environment, and heredity (through inbreeding). A state of oscillation of the eyeballs would probably excite in him the psychopathological feature of fear already present to some extent in consequence of the recognized riskiness of coal mining, and possibly also of its association with scotopic vision—we are all a bit "afraid of going home in the dark." This would be followed by anxiety as to the effects of the oscillation on his sight, and on his general health and his capacity for earning a living and keeping the home together. His condition would be aggravated by the knowledge that many of his fellow workers have been incapacitated from work for prolonged periods through nystagmus. Any inadvertent remark by doctor, solicitor, or friend as to possible loss of sight will inevitably confirm him in his neurotic state. Some slight irritation of the lids, due perhaps to conjunctivitis, to which miners are particularly liable, sets up headache and spasm of the lid and other muscles of the face. These, along with his fear and anxiety, produce loss of sleep, which in itself is an aggravating factor in the complex, and as a means of easy escape from a distressing psychological position he resorts to the avenue of the Workmen's Compensation Act.

If we assume that these symptoms are due to causes which have, perhaps justifiably, been described as the "dungeon complex," are we to regard them as a cause of disability, and if so, whether for pit work or for surface work or for all work? In many cases the giddiness set up by mere stooping—such as in tying a bootlace—or sudden movement is so intense that the patient is unable to stand, and in such cases it is obvious the man is incapable of doing any work, except perhaps in the sitting position. Percival is convinced that the incapacity for working in the pit varies directly as the degree of giddiness on stooping, by which he means "that if a patient shows nystagmus in a dark room, and the other signs such as the characteristic tremors, rapidity of pulse, etc., giddiness sufficient to render him incapable of pit work may be reasonably attributed to miners' nystagmus." But this is taking rather a restricted view of the causes of disability in miners' nystagmus, and it does not enlighten us as to what degree of giddiness is sufficient to render a man incapable of pit work. It must be that a good many miners suffering from giddiness of varying degrees and causation are capable of earning full wages at the coal face, while some who do not complain particularly of giddiness appear to suffer so acutely from pains in the head when they are asked to fix a point of light that it seems hopeless to expect them to do any form of work.

The question has been raised as to whether a miner who has once suffered from incapacitating nystagmus should be allowed to work in the mine again; the argument being that under the conditions of coal mining the disease is bound to recur, even if it is admitted that it may be cured for a time. I am not convinced that we possess any statistics or other form of information which would enable us to give an incontrovertible opinion in the matter. The vast majority of nystagmus patients do return to their old work and continue to earn full wages. An analysis of cases I have reported upon gives the following results. Return cases (two or three attacks): 1910–19, 9.5 per cent., 1919–24, 14.2 per cent. The percentages of third attacks were 1.5 and 4.7 for the same periods. There was no indication that the severity or the duration of recurrent attacks was any greater than that of the initial attack, neither did the working periods appear to get increasingly shorter. It must be remembered that relapses, like the original attack, are generally due to factors outside the actual occupation—for example, physical illness or injury, domestic worries, and particularly the economic state of the coal industry and of the labour market generally. Thus there was a tremendous accession of nystagmus cases, primary and otherwise, during the period of the coal stoppage, and there is always the same rush to the certifying surgeon when a mine closes down. It does not appear, therefore, that it is essential for the nystagmic miner to change his occupation in all cases. It is not an easy matter for anyone to change his occupation in middle or later life, and it is particularly difficult in the case of a miner, who has probably never had experience of any occupation other than his own specialized work. I do not think the miner himself is particularly enamoured of the suggested change, and the present state of the labour market does not

encourage it. For the same reasons industrial colonies staffed by disabled miners cannot be regarded as a sound economic proposition.

My main purpose in bringing up the question of miners' nystagmus again is not to discuss its etiology and symptomatology, but to appeal to ophthalmologists to take interest in the matter of its curative treatment. On the preventive side it must be admitted that a vast amount of work has been done and much money spent, though the tangible results so far have not been very great. Improvement in the hygiene and illumination of the mines seems to have had some salutary effect. Probably still better illumination, which would definitely substitute photopic for scotopic vision, would result in a very definite reduction in the incidence of miners' nystagmus. But what are we doing to relieve the patient who is already afflicted with this truly distressing complaint? There are hundreds of cases not receiving any form of treatment, apart from encouragement to get some work to do to avoid the evils of idleness and introspection. I consider this a reflection on the enterprise and public spirit of the ophthalmologists in mining areas. It may be true "that there would appear to be a disease, miners' nystagmus, the nature of which, as far as the eyes are concerned, we, as ophthalmic surgeons, can appreciate, accurately measure, and record; there is another disease, miners' psychoneurosis, of which we, as ophthalmic surgeons, have no special knowledge,"[1] but that is no reason why we should not make good that knowledge, with or without the help of psychological and other experts. The psychologists could deal with the factors of innate nervous instability and the psychic disability, but we could certainly deal with the toxic factor, which is probably present in all cases. The mining engineer will attend to the question of toxicity due to exogenous agents such as gases, but it should be our duty to find out the part played by endogenous toxins in establishing and sustaining the disease, and to adopt methods to counteract their action.

Mr. Frank Thomas of Swansea has obtained some favourable results by dealing with obvious oral and nasal sepsis in these cases, but if we are to attack the problem properly we shall need to go into the whole question of sepsis, and especially of intestinal toxaemia, and its correction. Investigations into these matters involve the institutional treatment of the patients, and obviously the institution must have the staff and equipment necessary to carry out these investigations.

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A NEW METHOD OF APPROACH IN GASTRIC SURGERY.

BY

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THE two cases of carcinoma of the stomach which I am about to describe in detail belong to a small group which at first sight might appear to be inoperable. From the point of view of a radical excision of carcinoma of the stomach cases fall into three categories. There are (1) cases in which the growth is confined to the stomach, where the stomach is not fixed, and which are suitable for an immediate partial gastrectomy; (2) cases where there are secondary deposits in the liver or elsewhere, which are obviously inoperable; and (3) cases where there are no secondary deposits, but where on account of the local conditions, the size and fixation of the growth, it is doubtful whether an excision can be done. It is to this last group that these two cases belong. They were both operated on by Sir Berkeley Moynihan, under whose care they were at the General Infirmary, Leeds.

Briefly, the method is to open the abdomen and give a big dose of deep *x* rays directly on to the tumour. A second operation is done six weeks later, when the growth is found to be considerably shrunken in size, and to be much more freely movable.

CASE I.

A woman, aged 45 years, was admitted with a three years' history of attacks of abdominal pain and nausea. Five months previously she had begun to vomit, and since that time she had been unable to retain any solid food whatever. For the last two months she had been in bed. There was a fixed tumour palpable in the epigastrium. An *x*-ray examination showed a filling defect in the stomach, involving both curvatures and extending from the pylorus about two-thirds of the way to the oesophageal opening. A fractional test meal showed a complete absence of free hydrochloric acid. She was given two transfusions of blood, and on August 31st, 1923, the abdomen was opened, using hedonal as an anaesthetic. A large mass of growth was found in the stomach; its extent was as shown by the *x*-ray examination, and the condition was described as a leather-bottle stomach. Glands were present along both curvatures, but there was no sign of any malignant deposit elsewhere. The abdominal wall was retracted, everything except the growth protected by mackintosh clothes and lead plates, and the growth itself was exposed to the direct action of the deep *x* rays for forty minutes. The abdomen was then closed and the patient sent to a convalescent home.

A second operation was done on October 12th, when the growth was found to have shrunk to roughly half its original size. In addition, it could be moved about quite freely and a partial gastrectomy was done without much difficulty. The patient had an uninterrupted convalescence and left hospital finally on November 3rd. She was still in good health four and a half years after the operation, except for a secondary anaemia. A recent blood count was as follows: Erythrocytes 4,180,000 per c.mm., haemoglobin 36 per cent., colour index 0.42, leucocytes 6,100 per c.mm.—a reading which is very definitely not of the pernicious type.

CASE II.

A man, aged 60, was admitted in July, 1924, with a history of indigestion since the preceding December. He complained of pain coming on three to four hours after a meal, and said that food relieved his pain. His appetite was fair, he had not lost much weight, but looked pale. An *x*-ray examination showed a filling defect in the middle third of the stomach, and a test meal revealed an absence of free hydrochloric acid. He was given three transfusions of blood, and on August 8th his abdomen was opened under local anaesthesia. There was a growth in the middle third of the stomach, mostly on the anterior surface. It extended into the great omentum and appeared to be dangerously close to the transverse colon. It was adherent posteriorly, so that it was quite impossible to lift the stomach up into the wound. There were no secondary deposits elsewhere. As in the previous case, an application of deep *x* rays was given directly to the growth for thirty minutes.

The second operation was done on October 1st, when it was found that the growth had shrunk considerably in size, that the posterior fixation had disappeared, and that it was quite possible to get between it and the transverse colon. The stomach was removed, and a note made at the time says that the upper division of the stomach was very close to the edge of the growth. The patient left hospital on November 11th and is still in good health more than three years after the operation.

A pathological examination of the specimen showed it to have been a spheroidal-celled adeno-carcinoma. The interesting point about this case is that in spite of the stomach having been divided closer to the growth than would ordinarily have been considered advisable there has been no recurrence. This is what we might expect, for as well as an action on the main mass of the growth, an effect must be produced on the clinically imperceptible permeation round it.

These two cases illustrate very well the changing of an apparently inoperable into a definitely operable state. At first sight there is no doubt that it would have been absolutely impossible to attempt to excise the stomach, while at the second operation the conditions for its removal could hardly have been more favourable.

An alternative method is, of course, to give a preliminary exposure of deep *x* rays to every case of carcinoma of the stomach which is to be operated on. To give a dose of the strength which can be applied directly to the growth would be to run the risk of an *x*-ray burn, and experience shows that one big dose is considerably more efficacious than a number of smaller applications applied to the growth at intervals by the cross-fire method.

Cases of this type belong to a very small group, for the conditions must be as I have described them for this line of treatment to be possible. It is a very high recommendation for the method that these two patients, the only ones to undergo treatment by this method, are alive without any signs of recurrence, in the one case four and a half years, and in the other five and a half years after operation.

ACUTE HAEMORRHAGIC PANCREATITIS WITH TUBERCULOUS DISEASE OF PANCREAS.

BY

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TUBERCULOSIS of the pancreas, appearing either in the miliary form or as a tuberculoma, is an uncommon *post-mortem* finding, and in cases such as the following, where a tuberculous process produced an acute haemorrhagic pancreatitis, a very unusual condition is encountered.

Clinical History.—A male patient, aged 66, was admitted to Dr. Douglas Russell's wards at the Victoria Infirmary, Glasgow, on July 22nd, 1928, deeply cyanosed and collapsed. Until the age of 42 he was stated to have been a normally healthy man, but at that time he had an illness, the nature of which we could not discover, which subsequently left him in indifferent health. Two and a half years ago he had broncho-pneumonia, became still more debilitated, and for five days before admission he had been unable to move through weakness and breathlessness. During the month prior to this he complained of flatulent distension and "stomach" pain, and his colour showed progressive cyanosis.

Condition on Admission.—On admission he was pale and cyanosed, the bluish coloration, of rather a striking character, extending over the whole body. His breathing was very laboured and rapid, and suggested pneumonia; the temperature was 99.4° F., respirations 32. The right side moved more freely; on percussion the left side was hyper-resonant over the front, and respiratory murmur was very harsh, with prolongation of the expiratory phase. The abdomen was distended, but not tense, and there appeared to be no tenderness.

No improvement in the patient's condition occurred, and he died two days after admission.

Post-mortem Examination.

The heart was of normal size, with pale muscle and atheromatous coronary vessels. The valves were healthy and competent.

The left lung was firmly adherent at the apex, and was studded with tuberculous nodules. Surrounded by fibrosed lung tissue and at the apex there was a small cavity of about the size of a walnut. The right lung was free, but similarly invaded, and there was some pneumonic consolidation at the base. The pleurae and pericardium contained some excess of fluid.

The liver, which was adherent to the diaphragm, was bluish-black on the surface, and on section was firm, and suggested cirrhosis. A cholesterin stone was found in the gall-bladder; no calculi were seen in the common bile duct or at the ampulla of Vater.

The spleen was much enlarged, and showed a similar dark pigmentation.

The pancreas was generally congested and firm; the head was much increased in size, rather difficult to remove from its blood-stained surroundings, and a section showed a large area of haemorrhage, approximately 2 inches by 1/2 inch, extending into the body of the organ and with smaller areas of necrosis surrounding it.

The suprarenals were enlarged, the medulla being rather soft and showing some cavitation.

The peritoneum contained some blood-stained fluid, and the omentum was soft and felt greasy, and some definite areas of fat necrosis were noted.

The examination of the other organs revealed nothing of any importance.

Microscopic Examination.—The lungs showed areas of catarrhal pneumonia, caseation, and occasional tuberculous giant cells. The spleen showed some caseous foci with definite tubercles and an extreme degree of congestion. The liver showed generally a fine cirrhosis, with some definite tubercles. Tuberculous invasion of the medulla was noted in the left suprarenal, and lymphocytic areas were common. The pancreas, sectioned at various levels, showed areas of necrosis surrounded by inflammatory cells, and in places extensive haemorrhages. Giant cells were occasionally found on the edge of a caseous area, and the vessels of the organ were generally thickened; sometimes this appeared to be confined to the intima, at others the entire vessel wall was affected.

COMMENT.

The pathology of acute haemorrhagic pancreatitis is not yet satisfactorily explained. The frequency of its association with gall-stones and with stones lodged near the ampulla of Vater suggests that the immediate causation is the entrance of bile into the pancreatic duct. Experimentally this has been proved to cause necrosis of the pancreatic tissue, and the injection of a variety of chemical irritants—zinc chloride, papain, artificial gastric juice—has been followed by lesions very similar to those present in subjects dying of haemorrhagic pancreatitis. In this particular case a gall-stone was present in the gall-bladder, and no other stone was found in the pancreas or the ducts; certainly a minute stone may have been missed, but the definite tuberculous lesion of the pancreas, the thickening of many of the vessels, suggests rather that the cause of the haemorrhage and necrosis could not be referred to the entrance of bile into the duct of Wirsung, but rather to erosion of a vessel or vessels by the tuberculous process.

The early occurrence of death in this disease is likewise not very clear. Some authorities believe that this is due to pressure on the solar plexus, and inflammatory changes in the sympathetic ganglia have been described. Others refer the rapidity of the fatal symptoms to absorption of protein derivatives due to the action of pancreatic juices on its own necrosed tissue. The latter view has some experimental support, and the characteristic cyanosis tends to confirm a biochemical change of some nature. It is more than probable that both factors are of importance.

Our thanks are due to Dr. Douglas Russell for his clinical notes.

CARDIAC DISEASE AMONG SOUTH AFRICAN NON-EUROPEANS.

(PRELIMINARY NOTE.)

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THIS investigation was suggested by the following quotation from *Rheumatic Heart Disease* by Dr. Carey Coombs: "The disease (pancarditis) due to rheumatism is rare among natives of China and India. I have never heard of the disease among the natives of Africa."

I have analysed the notes of the non-European patients of the Johannesburg General Hospital with the able help of my house-physician, Dr. S. C. Heyman, and with the kind permission of my colleagues on the staff. Dr. Strachan of the South African Institute of Medical Research has acted with me, and has checked from *post-mortem* records the accounts of the patients who died. Although the cases are few in number, they serve as a useful guide for future investigation. From these records we have excluded all patients of Asiatic origin as they have no place in the subject under consideration. About one-fifth of the total cases are of mixed stock (Eurafrican). In the Kaffirs, it must be remembered, we are dealing with a people in whom the way of life differs from that of Europeans. The Kaffir, however, has been in direct contact with European civilization for a number of years, and his mode of life has accordingly changed. What effect the change has had in the incidence of cardiac disease among this people it is impossible to say.

In this article we are writing in the main of the native who works in towns. As a rule the latter portion of his life is spent in his kraal, and there he dies, so that we are dealing principally with the Kaffir between the ages of 16 and 50. Such an individual spends half his life working in the towns and half at his kraal or home, where he tills the soil, shepherds his flock, or builds his dwelling. In the town his occupation is domestic, shop, or mine labour; it is never sedentary. In this short survey we have had to neglect the occupational factor, since mine labourers in active occupation are restricted to the mine hospitals and do not come into our hospital; and, for the reason mentioned already, Kaffirs are not often admitted for diseases of old age. On the other hand, our sick are drawn from a wide area, though the majority are of local origin at the time of invalidism.

Our analysis dates from March, 1924, to March, 1928. The cases included are all those of which we were reasonably sure of the diagnosis. Note-taking is difficult in the

native. Histories are generally short, indecisive, and variable from day to day, even with interpretation from the native tongue. In all we took the notes of 153 cases, of which 120 were Kaffirs, 31 were Eurafricans, and 2 were Hottentots. A striking fact is the huge mortality—81, or more than 50 per cent., died in hospital. This is attributable to the extremely late stage of disease in which they were admitted. Application for admission by a native is tardy, for he is afraid of hospital, and he is poor and works to the end.

A general survey of all cases will be taken first, and the etiology and characteristics will be considered; then a few particular aspects will be dealt with.

Etiology of Cardiac Disease in the Native.

One knows that syphilis is rife among the coloured races of South Africa, and one has a rough appreciation that its incidence is variable in different localities and with different tribes. It was with no little surprise, therefore, that we found that the commonest group of heart lesions were those of the rheumatic type. Of this etiology there were in all 64 cases, of which 42 were Kaffirs, 16 Cape people, and one Hottentot. Approximately two-fifths of all the cases in this series were of rheumatic type. Of the 64 cases only about one-sixth gave a rheumatic history, but this is in accordance with what I have already said about note-taking in the native.

The etiology of the others was judged from the clinical findings and from *post-mortem* records. On the clinical findings alone we are open to some criticism, but these findings conformed to those accepted in Europeans and to the necropsies of 16 cases. The sex incidence in these cases was almost equal, and the ages of the patients lay between 8 and 47. There were 18 deaths, 12 among the Kaffirs and 6 among the Eurafricans. The average age at death was round about 30.

Of syphilitic conditions there were 39 cases, of which 31 were Kaffirs, 7 were Eurafricans, and one was a Hottentot. There were 24 males and 15 females, and 16 deaths, 13 among the Kaffirs and 3 among the Cape people. The etiology of many of these conditions was confirmed by *post-mortem* findings; in the other cases the Wassermann reaction was positive and the clinical condition corresponded to the description of syphilitic cardio-vascular states in Europeans.

There were 25 patients with degenerative lesions; 18 were Kaffirs, 6 were Cape people, and one was a Hottentot. There were 23 deaths—17 Kaffirs and 6 Cape people—of these the majority came to necropsy and the etiology was confirmed.

There were 14 cases of bacterial endocarditis—12 Kaffirs and 2 Eurafricans; 9 were males and 5 females. All the cases were fatal.

Of pericarditic lesions there were 8; 6 were definitely non-rheumatic and 2 were of doubtful origin. All these patients were Kaffir males, and all died.

Of unclassified patients there were 3, all Kaffir males. One was a man whose heart was the seat of an interstitial myocarditis due to cysticercus—a lesion confined to the heart muscle; the second was a case of aortic regurgitation of doubtful origin, and the third a myocarditis of doubtful etiology.

Rheumatic Conditions of the Valves.

The lesions were of the same type as occurs in the European. In 41 cases the mitral valve alone was involved, there being either stenosis or regurgitation or both; in 10 cases there was aortic regurgitation alone, and in 13 cases both aortic and mitral valves were involved. A very small percentage of these cases gave a rheumatic history. Six had auricular fibrillation, of which 5 were associated with mitral disease, one with aortic disease. The clinical manifestations of failure of compensation were similar to those in white people, and reacted to digitalis and other drugs in a similar manner. Rheumatic nodules are found occasionally, but were not mentioned in the records of this series of cases. In one only of these cases was an attack of tonsillitis noted, and the incidence of tonsillar infections in this type of cardiac case seems to be rare, but this is a point which needs further elucidation. In none of these cases was pulmonary tuberculosis a concomitant disease, although this condition is rife among the native population. The *post-mortem* changes in the heart and other viscera were similar to those found in Europeans. The ages of the patients with auricular fibrillation varied from 18 to 50. None of these cases died in hospital, a fact I attribute to the crippling decompensation from which these patients suffer and their quick reaction to the digitalis group of drugs. I suspect that these patients proceeded to their kraals and died for want of appropriate treatment. Pericarditis occurred in two cases, both fatal and confirmed at necropsy. Acute nephritis occurred in one case and infarction of the lung in one case.

Syphilitic Disease.

The average age of these patients was 47, and ranged from 26 to 70. This agrees with the age in Europeans. It is a curious fact, however, that tabes dorsalis, which occurs most commonly in the Europeans in the fifth decade, is a rare condition among the natives, though occasional cases do occur; primary optic atrophy due to syphilis is far commoner. I mention this as I have pointed out elsewhere[1] that cardio-vascular syphilis and early signs of locomotor ataxia occur together in a certain percentage of white cases. Of the total of 33 cases 10 (8 Kaffir, 1 coloured, 1 Hottentot) exhibited aneurysm of the aortic arch (2 abdominal, 1 descending thoracic aorta, and the remainder aortic arch or descending thoracic aorta), and 4 of these were in women; 10 out of 33 is a far bigger proportion of aneurysmal occurrence than happens in European syphilis, and is probably accounted for by lack of early treatment in these cases. It is also noteworthy that 14 of the total number of cases occurred in women, whereas in Europeans the incidence is only one in ten. I ascribe the increased incidence to the common occurrence of promiscuous intercourse between town-living natives, and also to the ignorance of the native as to the nature of syphilis, so that he does not come for treatment in the primary stages.

The commonest pathological condition was that of aortic regurgitation, which occurred in more than half the cases. Auricular fibrillation was present in one case, and I have seen one case of auricular flutter, which is not included in this series. Syphilitic cardio-vascular degeneration apart from aortic regurgitation was also common, and there was one case of syphilitic cerebral thrombosis. In many of the cases there was enlargement of the heart to the left, in some of which there was no aortic regurgitation (thus conforming to cases described in the European). When failure of compensation occurred the symptoms and signs were similar to those in the European. It is my impression that both auricular fibrillation and angina pectoris are rarer in syphilitic cardio-vascular disease in the native than they are in the white. Enlarged epitrochlear glands are common in these cases, and occasionally one finds tertiary syphilis of the bones or a fibrotic change in the lung, probably of syphilitic nature.

Degenerative Lesions of the Heart and Blood Vessels.

The large death rate in these lesions has already been quoted. The ages ranged from 27 (a case of interstitial nephritis) to 68, the average being 48. Five of these cases were accompanied by nephritis, of which one patient had a subacute exacerbation at the time of death. In one case the blood pressure was 268/165, but unfortunately in many cases the blood pressure was not recorded. In two cases there was enlargement of the right side of the heart only, and in both these cases there was myocardial degeneration—in one accompanied by cirrhosis of the liver. (In the Kaffir the etiology of this type of primary cardiac degeneration without enlargement to the left is obscure; there is no thickening of the blood vessels, nor is there much raising of the blood pressure; it is not a senile change, since one of the two cases was aged 37 years.) In the majority of cases the heart was greatly enlarged. Aortic regurgitation occurred in 3 cases (one with aortic stenosis), one was complicated by hydatid disease of the brain. The majority of the cases died of heart failure. Other causes of death were kidney insufficiency, cerebral thrombosis with lobar pneumonia, peritonitis, and pericarditis. Relative

mitral incompetency occurred, as might be expected. I have not yet seen a case of pure hyperpiesis in the native without arterial thickening, but I have seen two patients, not included in this series, where the systolic blood pressure was over 300 mm. of mercury. They first came to the ophthalmic surgeon (the late Dr. M. Baranov) for failure of vision, which was due to retinitis.

The actual causes of arterial thickening in the native are as obscure as in the white. Most of them do heavy work, some of them are alcoholics, few of them are subjected to great mental stress.

Acute and Subacute Bacterial Endocarditis.

The bacteriology of these cases has not been elicited in this series. In one case the streptococcus and *Bacillus coli* were cultured and in another a pure streptococcus. In two of the fourteen cases the Wassermann reaction was positive, and in one there was an underlying chronic endocarditis of the mitral valve alone. The clinical findings were similar to those in Europeans, and these were confirmed by necropsies. Heart failure, cerebral embolism, or infarctions were responsible for the deaths.

There is great difficulty in the diagnosis of these cases. Acute tuberculosis and typhoid fever are both rife, and with the scanty history the diagnosis is often impossible in early stages. Given the complication of malaria with one of these acute illnesses, the differential diagnosis is still more difficult. In all the cases the heart was enlarged, and in all the disease was fatal within a comparatively short space of time. None of them showed any remissions—that is, they were all of the acute form of the disease.

Unclassified Cases.

Of three unclassified cases one suffered from aortic regurgitation, one from a myocarditis of unknown etiology, and the third from an infection of the myocardium by the cysticercus. A generalized infection with cysticercus is not uncommon among the natives.

Some Uncommon Types of Cardiac Disease.

Auricular flutter due to syphilitic myocarditis is rare, but has been described. One such case occurred in a native female under my care; this has not been included in the series. In this case normal rhythm was induced by digitalis-quinidine therapy, antisyphilitic measures also being carried out.

Syphilitic Pericarditis.—This is seen among natives, but is rare. It appears as an effusion accompanied by failure of compensation; the clinical signs are those of a pericardial effusion. Paracentesis of the fluid shows it to be blood-stained, as I have been told, and this, with vigorous syphilitic measures, is sometimes successful in treatment.

Tuberculous Pericarditis.—The pericardial lesion presents itself with the physical signs of a large effusion with extreme failure of compensation, accompanied occasionally by oedema of the arms as well. Paracentesis gives no fluid. Necropsy reveals that visceral and parietal pericardial sites are occupied by solid plaques of tuberculous material, sometimes half an inch thick. The myocardium is sometimes much weakened by infiltration with tuberculous material. The whole organ appears to be enlarged.

Conclusion.

It does not appear that there is a wide divergence between the etiology, pathology, and clinical signs of heart disease in Europeans and African non-Europeans. In this paper stress has been laid on etiological factors. It has been pointed out that the mortality rate is high in the series; this must mean that the course of cardiac disease is shorter in the non-European, or that the patient is admitted in a later stage of the disease than the European; or both factors may come into play.

Some important etiological factor in the causation of rheumatic fever might be elucidated by comparing the Kaffirs living altogether in the native state with the Kaffirs in the towns. The medical history of the Kaffir before the influence of European civilization affected him is unfortunately not to be ascertained. The climate of South Africa, speaking generally, is one of sunshine, and is hot and dry. It seems that climatic conditions as an etiological factor in the causation of rheumatism must be discountenanced here.

Nasopharyngeal infections or bad teeth cannot be dismissed as factors as they commonly occur in hospital patients. Their evidence in this series has not been determined. The dietary factor is a very variable one in the series; it is difficult to obtain exact knowledge, but the Kaffir, as a rule, takes a diet of greater carbohydrate content and less fat and vitamin constituent than the European.

As regards non-rheumatic cases, little can be added to the facts already quoted. It must be reaffirmed that the mortality among the patients with degenerative types of lesion is extremely high, and that the syphilitics have a high aneurysm incidence.

Much work is yet to be done, especially in diseases of rheumatic etiology. It is to be hoped that one day a commission will be instituted to inquire into this—directly to help the native, indirectly to elucidate factors in the causation of acute rheumatism—and so throw light on a very baffling medical question.

REFERENCE.

[1] *British Medical Journal*, January 22nd, 1927, p. 133.

A CASE OF GRADENIGO'S SYNDROME.

BY

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THE association of temporo-parietal pain and paralysis of the sixth cranial nerve in connexion with an acute otitis media on the same side was pointed out by Gradenigo in 1904. The attack of otitis media may be of short duration, and the abducent paralysis may follow in a few days or in one or more months.

Considerable attention has lately been paid to this syndrome, but yet it seems sufficiently rare to make the following case worthy of report. Symonds[1] quotes Sears as having recently collected records of 317 cases since Gradenigo's paper in 1904, but he states that in some of these cases the sixth nerve palsy appeared to be secondary to extradural or cerebral abscess, and therefore should not properly be included in the category of Gradenigo's syndrome. In the case recorded below an interesting feature is the fifth nerve distribution of the pain in addition to the usual temporo-parietal situation.

A married woman, aged 44, was admitted to this hospital under Dr. V. H. Blake on December 17th, 1927, for severe neuralgia of the left side of the head in association with acute otitis media on that side. She had been under Dr. Blake's care since December 4th, when she complained of pain in both ears. The next day her temperature rose to 100° F., and both tympanic membranes were inflamed. Her temperature continued between 99° and 100° F. till December 9th, when it became normal. On December 10th inflammation in the right ear was settling down, but the left tympanic membrane had perforated. Discharge continued for only four days, and when admitted on December 17th her temperature was normal, but the left drum was again bulging. Whilst in hospital her temperature remained normal till December 26th, but the neuralgia was persistent. It was temporo-parietal and facial in distribution at first, but later only temporo-parietal. The pain was so severe that narcotics had to be administered every evening, and even then she passed only indifferent nights.

Diplopia was first noticed on December 23rd, and on the following day Dr. Blake asked me to see the case and carry out any appropriate treatment. The temperature and pulse were then normal. The patient's appearance was that of weariness from continuous pain. There was no oedema or tenderness over the left mastoid, but there was slight meatal tenderness. Rinne's test was negative on both sides, and Weber's test was referred to the left ear. Bone conduction was slightly diminished. The stop-watch could be heard at a distance of 1 inch with the right ear, but not at all with the left. The whispered voice could be heard at rather more than 4 feet on the right side, but on the left it was only audible at 6 inches. The left tympanic membrane was dull and opaque, and there was a marked bulge of Shrapnell's membrane of a dull red colour. On the right side the membrane was retracted. There was complete paralysis of the sixth left cranial nerve. Other movements of that eye and all movements of the other eye were good. The pupils reacted normally to accommodation and light, and there was no nystagmus. There was some hyperaesthesia of the left side of the face as tested with

cotton-wool and a pin, but it was not marked. There was no facial weakness, and no paresis of the ninth, tenth, eleventh, or twelfth left cranial nerve. There was no retropharyngeal swelling. Cerebration was apparently normal. There was no stiffness of cervical muscles, and abdominal reflexes, knee-jerks, plantar reflexes, etc., were all normal. The fundi were examined by Mr. William Wyllys and reported normal.

The further progress of the case was as follows:

December 25th: There was pain during the night, but the patient is easier this morning.

December 26th: Pain was very severe during the latter part of yesterday and all the night in spite of the narcotics. She is now in great pain. Begs for something to be done. Bulging of Shrapnell's membrane has increased and is now bright red. Inflammation is spreading down the posterior segment. Deafness on the left side has increased, and the whispered voice can now only be heard at 3 inches. Meatal tenderness is very marked. There is definite periosteal thickening over the mastoid and slight tenderness. Other signs as before. The temperature is 99.2° F. and above normal for the first time since admission.

Operation.—Paracentesis was first performed. Schwartze's operation revealed a small granulation in the antrum, but no pus was seen. The tegmen antri was then removed. The dura was not under tension, and the surface was finely granular. The cavity was packed with bipped gauze.

December 27th: Patient has had a very good night without any narcotic. She states that aural pain and neuralgia have completely disappeared, but there is slight pain round the left eye. Diplopia as before.

December 28th: The pain round the left eye is rather worse; no return of other pain.

December 29th: First dressing, under nitrous oxide anaesthesia. The gauze wick which had been placed in the meatus was soiled with a little pus. Packing from the wound was fairly clean. She has had two good nights.

December 30th: Patient says she has been easier since the dressing was done yesterday, but still has some pain round the left eye.

December 31st: No pain in the ear or temporo-parietal region, but she has had more pain in the left eye, supraorbital region, and left cheek. Diplopia is still present, but there seems to be slight movement in the left external rectus.

January 3rd: She has had a few shooting pains in the left ear and temporo-parietal region.

January 8th: The pain round the eye has been improving gradually. She now has very little except on waking in the morning. There have been no more temporo-parietal pains. She sleeps well at night and often by day. The cavity is granulating slowly.

January 16th: There has been no pain round eye for several days, but she still wears an eye-shade in the evening as artificial light worries the eye.

January 26th: The mastoid cavity is now filling satisfactorily with healthy granulations. The patient is leaving the ward to-day and will attend daily for dressings. Eye movements are as before.

March 1st: Complete healing of the wound has been very slow, but she ceased attending daily three weeks ago, since when she has been attending Dr. Blake, who states that he first noticed return of movement in the external rectus on February 22nd. There is no diplopia now, and all movements of the left eye are as good as those of the right.

In the treatment of this case two points are especially open to criticism.

1. Paracentesis alone might have been the only operative treatment necessary, and if the pain had not been relieved by this the Schwartze operation could have been performed later. This course was not adopted on account of the excessive pain the patient was then suffering, and had suffered all the previous night. The indications for mastoid operation *per se* were slight, but it seemed unwise to risk another night of such severe pain where there was the slightest doubt as to the condition of the mastoid antrum.

2. No lumbar puncture was performed. Reports seem to agree that not only is there no macroscopic change in the cerebro-spinal fluid in these cases, but there is seldom any change to be found on pathological examination. In addition, as the hospital has no pathological department an examination of the fluid would have been difficult to obtain.

Facial neuralgia was present in the early stages of the illness, and although the operation completely relieved the severe temporo-parietal pain, the patient complained for some time afterwards of pain of lesser intensity round the left eye and in the left cheek. The anatomical explanation of the syndrome would seem to offer an easy solution to this. After piercing the inner layer of the dura mater the sixth nerve lies for a few millimetres with the inferior petrosal sinus in between the two layers of the dura mater at the tip of the petrous bone in what is known as Dorello's canal. This canal is bounded below by the petro-sphenoidal suture, above by the posterior clinoid process and petro-sphenoidal ligament, internally by the dorsum sellae, and externally by the apex of the petrous bone.[1] [2] The Gasserian ganglion lies in the trigeminal impression on the antero-superior surface of the petrous bone near its apex.

The syndrome is said to be due to a serous extradural inflammation implicating the sixth nerve in Dorello's canal. Hence from the proximity of the Gasserian ganglion it would be expected that the fifth nerve involvement would not be uncommon. This involvement has been stressed by Rimini,[3] and was marked (with slight photophobia) in the case reported by Hamilton and Kerr.[4]

There was no involvement of any cranial nerve other than the fifth and sixth, and there was no homolateral retro-pharyngeal swelling, as occasionally occurs and was noted by Leitch.[5]

The notes of this case were submitted to Mr. G. J. Jenkins for his opinion, and I am exceedingly indebted to him for his comments. He considered the case to be a typical Gradenigo's syndrome, and he particularly emphasized the fifth nerve distribution of the pain, which he states is more common than is generally recognized. I have to acknowledge my thanks to Dr. V. H. Blake for permitting me to treat the case, for additional details in the history before admission to hospital, and for valuable criticism in the presentation of these notes.

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[1] C. P. Symonds: *Journ. of Laryngol. and Otol.*, vol. xlii, p. 656.
[2] Logan Turner: *Diseases of the Nose, Throat and Ear*, second edition, p. 347.
[3] E. Rimini: *Arch. Internat. de Laryngol.*, July–August, 1926.
[4] E. Burt Hamilton and J. A. Kerr: *Journ. of Laryngol. and Otol.*, vol. xliii, p. 43.
[5] J. W. Leitch: Ibid., vol. xlii, p. 457.

TREATMENT OF ACTINOMYCOSIS.

BY

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IN an article published in the *British Medical Journal* on March 6th, 1926 (p. 418), I gave an account of four consecutive cases of actinomycosis which had been rapidly cured by small doses of tincture of iodine administered in milk. I believed at the time that iodine given in this way was in a colloidal state. When milk is added to tincture of iodine a point is reached at which the mixture becomes colourless and tasteless. This result is more rapidly attained when cream is substituted for milk, and it appears that the iodine unites with the cream to produce an iodized fat.

In this connexion the observations of Dr. Warwick Preston[1] are of great interest. He records two cases of actinomycosis of the lung which improved rapidly after the injection into the trachea, for diagnostic purposes, of lipiodol—an iodized oil. A subsequent course of iodine and milk completed the cure. This suggests that various iodized fats may have a similar specific action upon actinomycosis.

Black mycetoma is a disease produced by an organism similar to the ray-fungus, and I have received from India reports of two cases which were cured by iodine and milk, and of one old-standing case of "Madura foot" which began to improve rapidly as soon as this treatment was instituted.

Since the appearance of my first article four additional cases of actinomycosis have been under my own care, all of which have been cured.

CASE I.

A man, aged 42, in July, 1925, was operated upon at another hospital for appendicitis. The wound was drained, and one month later he was discharged from hospital with a sinus at the site of operation. In September of the same year he was readmitted, and further abscesses were drained in the abdomen and right loin.

He first attended the Bristol Royal Infirmary on February 16th, 1926; he was then extremely emaciated and in constant pain. Hard masses filled the right side of the abdomen and extended across the epigastrium to the splenic region. Several sinuses were present in the right loin and the right side of the abdomen; from them there was a copious discharge of pus containing typical sulphur granules, and an immediate examination confirmed the presence of actinomyces. He was given tr. iodi sine iodidi, minim v, thrice daily in milk until March 6th, when he was admitted as an in-patient. By this time all his pain had vanished; he could eat anything, and he had put on nearly a stone in weight. The masses in the abdomen had almost vanished, but there was still some thickening around one abdominal scar. Three sinuses were still present, but there was little discharge from them, nor could actinomyces be identified any longer in the pus. He was discharged on March 17th.

He was readmitted in October, 1926, as three sinuses refused to heal; they all communicated, and were probably due to a deep infected ligature. They eventually closed after being injected with various substances, such as brilliant green and crystal violet.

CASE II.

This patient, also a man aged 42, was admitted to the Bristol Royal Infirmary on September 17th, 1927. Three weeks previously he had had a right lower molar tooth extracted on account of pain and swelling in the jaw. Between this time and his admission he had had numerous anaesthetics for the extraction of other teeth, the exploration of his lower jaw, and the opening of sundry abscesses of the face and neck.

On admission the whole of the right side of the face was greatly swollen; large fluctuating abscesses extended from below the right angle of the jaw to the right temporal region, and he was unable to open his mouth. The abscesses were opened freely, actinomyces was identified microscopically, and he was put on the usual treatment. On October 12th he was discharged healed. Some thickening persisted in the tonsillar region, and it was three months before this had disappeared completely. He has remained well ever since.

CASE III.

A man, aged 23, was admitted as a case of probable actinomycosis on April 4th, 1927. He had a hard swelling over the left side of the jaw, and a history of recurrent abscess formation for seven months previously. The abscess was opened and the pus examined with a negative result. He had been put on the iodine treatment, but in view of this finding, and the fact that the abscess healed rapidly, this was discontinued, and he was discharged.

He returned with another abscess in September, and this time actinomyces was identified. He was put on treatment again, and the lesion slowly healed, leaving a deep depression in the jaw where bone had been destroyed. He has remained well ever since.

CASE IV.

This case, that of a youth aged 17, was very similar to the last. He first attended the Royal Infirmary on October 8th, 1927, with an indurated swelling over the left side of the lower jaw. This soon broke down to form an abscess, the pus from which was found to contain actinomyces.

He was put on the same treatment, and his wound rapidly healed. He was last seen on December 13th of that year, but he writes, in answer to an inquiry, to say that he has had no recurrence of the trouble since that date.

REFERENCE.

[1] *British Medical Journal*, December 29th, 1928, p. 1172.

A CASE OF ULCERATIVE ENDOCARDITIS OF PUERPERAL ORIGIN.

BY

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AND

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THIS fatal case of puerperal sepsis is interesting because of the almost total absence of pelvic symptoms or signs, and because there were no clinical signs suggestive of heart lesions such as were found at necropsy.

Clinical History.

A primipara, aged 23, was confined in an outlying district on July 21st, 1928; the labour was normal except for early rupture of the membranes. No instrument was used, and there was no trauma. Up to about the tenth day, when the patient was reported by her mother to have had a rigor, the puerperium was normal. She got up on the eleventh day, but further rigors were reported to have occurred on the seventeenth and twenty-fourth days. On the twenty-ninth day she came to Barnsley to her mother's house, and on the thirtieth day had another rigor.

One of us (G. R. M.) was called in on the thirty-first day, and found the following conditions: the temperature was 99° F. and the pulse 120; the uterus was fully involuted, retroverted, and free from tenderness, and there was no uterine discharge. The urine was normal, and no other abnormal signs were found. The retroversion was replaced. On the night of the thirty-third day the patient became orthopnoeic, her temperature rose to 102.6° F., and her pulse to 140. On examination a gallop rhythm was found at the heart, but no enlargement or murmurs were detected. The bases of both lungs were dull on percussion, and auscultation revealed moist sounds and friction rub. An injection of atropine, strychnine, and digitaline was administered. On the thirty-fourth day we both saw the patient in consultation. She was obviously suffering from toxic absorption, but no other abnormality was found. The lungs were now resonant and free from abnormal signs. Material was taken for an agglutination test, which proved to be negative. From now on the patient had numerous rigors. On the thirty-seventh day she was admitted to hospital. On examination we found that the heart was not enlarged, and there were no murmurs to be heard. There was a reduplicated first sign at the apex and the left border of the sternum. Occasionally sibilant rales were heard in the lungs. The pelvic organs were apparently normal, except for a slight, non-offensive uterine discharge. The patient was given 25 c.cm. of antistreptococcus (puerperal) serum. She was restless that night, and on the morning of the thirty-eighth day she collapsed. She was orthopnoeic, but with stimulant treatment made a partial recovery; her temperature, however, was 107° F. She remained in a typhoid state until her death on the fortieth day. Towards the end the patient's urine was highly coloured with urates and loaded with albumin. Her temperature varied from 103° to 107° F., her pulse became uncountable, and her respiration rate varied from 45 to 75.

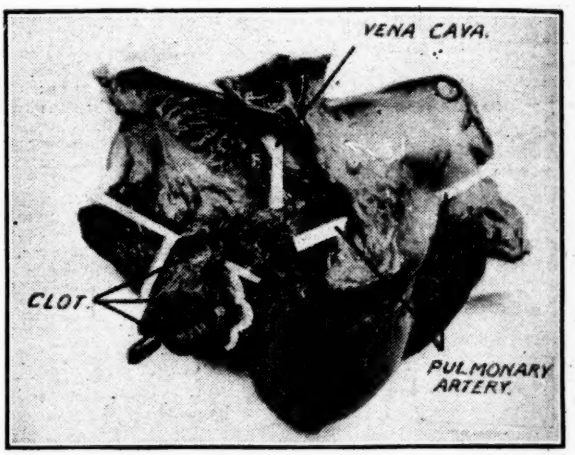
Post-mortem Findings.

On September 1st, 1928, a *post-mortem* examination was made. Apart from tumidity of the abdomen there were no external signs of disease.

Abdomen.—There were no signs of peritonitis, and the bowel, though considerably distended, was not ulcerated. The liver was enlarged, passively congested, and showed signs of cloudy swelling; there were no abscesses. The spleen was enlarged, congested, very friable, and free from abscesses; the Malpighian bodies were not visible. The kidneys were pale, the cells being in a condition of cloudy swelling; there were no signs of abscess formation. The uterus was well involuted, the mucous membrane being soft and friable, and slightly septic. The os was slightly patulous, and a recent blood clot was found in the body of the uterus. There was nothing else abnormal in the pelvis.

Lungs.—These were in a state of hypostatic congestion, and at both bases there were recent pleural adhesions to the diaphragm. There were no signs of infarct or abscess formation.

Heart.—The pericardium contained about 3 oz. of greenish fluid with some shreds of fibrin. On the anterior epicardiac surface



there was a serous patch about the size of a threepenny-piece. The heart weighed 7¾ oz.; its muscles were rather pale and flabby. The left auricle and left ventricle were normal. The mitral valve showed signs of early endocarditis, with the formation of pink nodules on its ventricular surface. The aorta and coronary arteries were healthy, but the aortic valves showed signs of endocarditis. The papillary muscles of the right ventricle were friable and inflamed. There was (as shown in the photograph) a large suppurating blood clot, weighing 126 grains and measuring 6.3 by 2.2 cm., firmly attached to the anterior cusp of the tricuspid valve. The cusps of the tricuspid valve were greatly thickened and in a state of necrotic ulceration. The right auricle and the pulmonary valve were apparently healthy, but attached proximally to the left posterior cusp of the tricuspid valve, and passing through the pulmonary valve into the pulmonary artery was a thin, recent *ante-mortem* clot, 8 cm. long, and bifurcated at the distal end.

COMMENT.

The clot attached to the tricuspid valve was wedged in the valve ring, and we considered that it was probably acting as a ball valve and had been present for two or three weeks. Of special interest were the site of the chief cardiac lesion and, apart from the reduplicated first sound, the absence of abnormal signs. At no time did the patient complain of pelvic or cardiac pain, nor could any previous history of rheumatism or tonsillar or cardiac trouble be elicited.

We are indebted to Dr. T. E. Francis and Dr. D. H. Hubbs for permission to publish this case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRAUMATIC RUPTURE OF THE SPLEEN COMPLICATED BY HAEMATURIA.

THE following instance of rupture of the spleen seems worth recording in view of the masking of the diagnosis by haematuria, and the relatively slow pulse rate.

A man, aged 29, was admitted to hospital one night in a dazed condition. He had been riding a motor cycle round a bend in the road when he had skidded; he could remember nothing of the accident. There was no history of malaria, and the patient had never been abroad.

On admission he complained of pain in the left loin and in the head; the forehead was contused and there was some epistaxis. The pulse rate was 74 and the temperature 96.8° F. There was no pain, tenderness, or rigidity in the abdomen. The next morning the pain in the left loin was more pronounced and was accompanied by a swelling which extended forwards from the left kidney angle, and blood-stained urine was passed. The pulse rate was 82 and the temperature 98.2° F. During the day he began to complain of pain in the epigastrium, thrist, and dryness of the mouth. He vomited occasionally, but the vomit consisted mainly of fluids administered. The pulse rate was taken hourly during the day and ranged from 82 to 86, the volume being well maintained. Four specimens of urine were collected; the colour varied from smoky to definite red. In the evening a little distension of the abdomen was noticed.

On the following day the pulse rate was 88, but the volume remained good. The patient was still vomiting and the abdomen was somewhat more distended. The bowels having been confined since admission, an enema was given, and was followed by considerable relief. At noon the pulse rate remained at 88, but the abdomen was becoming distended again, and some dullness in the flanks was now present for the first time. It was more marked on the left side, though it could be made to shift from either side. After this the dullness and distension steadily increased, although the pulse rate never exceeded 88. The urine passed during the morning had remained blood-stained. At no time had the patient complained of pain in the left shoulder.

It was thought that the kidney had ruptured into the peritoneal cavity, and that afternoon the abdomen was opened by a left paramedian incision above the umbilicus. A large quantity of free blood was encountered as soon as the peritoneum was incised; this was rapidly mopped up. Examination of the left kidney area showed some swelling, but no communication with the peritoneal cavity. Blood was found to be issuing from the upper left quadrant of the abdomen, and the examining hand encountered a ruptured spleen. An incision across the left rectus enabled the spleen to be brought out of the wound. The upper pole was pulped and, in addition, there was a transverse wound at the level of the hilum. The pedicle was ligatured and the organ was removed.

Convalescence was uneventful save for the haematuria, which continued for twelve days, but gradually abated.

The cardinal signs of splenic rupture—namely, abdominal rigidity, local tenderness, Ballance's sign (shifting dullness in the right flank and constant dullness in the left flank), and Kehr's sign of pain referred to the left shoulder—were singularly absent in this patient.

Foucault[1] mentions rupture of the kidney in differential diagnosis from rupture of the spleen, and states that the latter is made apparent by the associated haematuria and lumbar swelling, both of which were present in this instance.

Gordon Watson[2] remarks that in rupture of the spleen the pulse diminishes in volume as it increases in rate until it becomes running and imperceptible. Hamilton Bailey[3] says that "when the diagnosis is uncertain a clearly recorded half-hourly pulse chart is above all things of the greatest diagnostic value."

More helpful in this instance was the dictum of Butler and Carlson,[4] who discuss nine cases of traumatic rupture of the spleen: "In all patients in whom there is a history of trauma to the abdomen, to the flanks, or to the lower chest, even if there is no visible injury or local evidence of injury, we must always be alert and not overlook the slowly developing shock, the slight distension, and the abdominal pain, not too severe, that are the early signs of rupture of the spleen."

Torquay. B. VENN DUNN, M.D., F.R.C.S.Ed.

[1] Foucault: *Journ. de Méd. de Bordeaux*, 1925, 102, p. 1138.
[2] Gordon Watson: Choyce's *System of Surgery*, 1914, vol. 2, p. 105.
[3] Hamilton Bailey: *Brit. Journ. Surg.*, 1927, xv, 57, p. 41.
[4] Butler and Carlson: *Surg. Clin. of North America*, 1926, vi, 2, p. 517.

THE CAUSE AND CURE OF MORNING SICKNESS.

MANY years ago I was treating a pregnant patient for a vaginal condition, and among other things I used a tampon of glycerin and borax (*B.P.*). When I next called on her I was greatly interested in her statement that since my previous visit she had been quite free from morning sickness. This caused me to investigate the matter, and after eliminating other factors I concluded that the cure was due to the glycerin tampon. Thereafter I made it my constant practice to treat cases of morning sickness with glycerin and borax tampons, and since that time I have never had a failure.

I mentioned this treatment at various times to my assistants, and also to my fellow practitioners, and spoke about it at the Glasgow Gynaecological and Obstetrical Society, without being able to explain why it should be successful. Recently I hit upon what I believe to be the solution of the problem. On reading up the subject I find that all the successful cures so far recorded have followed the opening of the cervical canal; one practitioner forced his finger through the cervical canal, while another employed a wide, tapered sound. The risk of these procedures was so manifest that their disuse followed. One other practitioner swabbed the cervix with a solution of silver nitrate, causing a marked improvement in the patient's condition.

I have been watching my cases recently and have observed the following facts. The vulva and vagina were turgid, swollen, and discoloured; the cervix was also swollen, and the canal was choked with the increased secretions from the endocervical glands. After the use of the tampons the turgidity of the vulva and vagina was greatly diminished, while the colour was much brighter and more healthy looking; the greatest improvement, however, is to be seen in the cervix, which is greatly diminished in size, and in the cervical canal, which is practically normal.

How does it come about that the closure or choking of the cervical canal should cause morning sickness? Our surgeons could understand it by comparing it to choked ducts such as the bile duct, or obstruction as in strangulated hernia; one has only to think of what happens when the Eustachian tubes become obstructed.

Technique of Applying Tampon.

A piece of Gamgee tissue 2 by 4 inches is rolled up, and tied with a length of soft crochet thread; two ends of the thread about 8 or 10 inches long are left, so that the patient may remove the pad herself. It is then inserted into the pouch of Douglas, extending at least as far as the vault, and lying in contact with the cervix. This pad can be removed after being in position for two days, and another pad can be inserted. I generally find that two pads are quite sufficient, and I have had to use four pads on only two occasions.

There is no reason why they should not be persevered with in profound cases until the sickness has entirely passed away. My experience has been that in mild cases one tampon gives so much relief that, generally, there is no necessity for a second. The most inveterate cases may require up to four, each one giving increased relief.

To sum up, in simple morning sickness one or two tampons will suffice. In hyperemesis gravidarum, or, as our American friends call it, the profound emesis of pregnancy, four tampons may be required.

Paisley. ANDREW RICHMOND, M.B., C.M.

MYXOEDEMA FOLLOWING MAMMARY HYPERTROPHY IN CHILDHOOD.

THE unusual after-history of the case about to be described is my excuse for submitting it for publication.

The patient was a perfectly healthy girl until the age of 13, when it was noticed that both breasts were rapidly increasing in size. The enlargement became so great that it was necessary to seek treatment, and she was accordingly admitted to the Pendlebury Hospital, Manchester, on April 4th, 1900. The following is a note of the condition made at the time of her admission, and for which I am indebted to the secretary of the hospital.

"There is a very great hypertrophy of both breasts, especially the right. The hypertrophy is general, diffused, and is not a tumour; there is no localization and all the breast tissue is involved. The breasts are quite soft and flabby, while here and there strands of fibrous tissue can be felt; when the girl stands up the right breast hangs well over the abdomen. There is no

pain, no inflammation, no glandular enlargement, and no hypertrophy of tissue elsewhere."

On April 21st, 1900, the right breast was removed and was found to weight 8 lb. 2 oz. Two months after the operation the girl menstruated for the first time. The left breast was amputated in July of the same year and weighed 6 lb. 8 oz. The patient made an excellent recovery from both operations, and for the next twenty years her health was good, except that the periods were irregular, the loss scanty, and a good deal of pain was experienced. She was married in 1917, and in the following year gave birth to a healthy male child.

About the beginning of 1922 she began to grow very stout, complained of weakness, and walking was difficult from stiffness of the knees and ankles. She thought she had "dropsy," and consulted a doctor, who, after examining the urine, assured her that there was nothing wrong with the kidneys. I saw her first in December, 1925, when she presented the typical picture of advanced myxoedema. There was no albuminuria. Treatment by thyroid extract was started at once, at first tentatively, and then pushed gradually to the limit of tolerance. The result was that the condition cleared up rapidly, and one of the most striking effects from the patient's point of view was that she menstruated regularly and painlessly for the first time in her life. She still takes thyroid extract, and three years after the commencement of the treatment remains perfectly well.

The long history of dysmenorrhoea suggests that a degree of hypothyroidism existed, at any rate from puberty; while it is more than likely that the condition of the breasts occurring at this time may have had its origin in some derangement of the endocrine system.

Umtali, S. Rhodesia. WALTER ALEXANDER, M.D., D.P.H.

Reports of Societies.

GENERAL PARALYSIS OF THE INSANE.

THE Sections of Psychiatry and Neurology of the Royal Society of Medicine combined on February 12th and 14th for a discussion on the prognosis and treatment of general paralysis of the insane. On the first evening Sir MAURICE CRAIG presided, and on the second evening Mr. DONALD ARMOUR.

Dr. W. H. B. STODDART, in opening, remarked that it would be interesting to know in what proportion of cases a remission occurred when the disease was allowed to run its natural course. In the report of the London mental hospitals for 1926 it was stated that during the three years previous to the introduction of malarial therapy only 2.6 per cent. of the 227 cases of general paralysis were improved. During the first decade of the present century the speaker was in the habit of giving hexamine to general paralytics, with the result that remissions occurred in about 25 per cent. of the cases. The drug acted best when the patients were receiving a certain amount of alcohol in the form of brandy at the same time. General paralytics treated with hexamine had no apoplectic or epileptic seizures, and their lives were prolonged. The ordinary antisyphilitic treatment with mercury, iodide of potassium, or salvarsan was of no value, because these drugs could not enter the cerebro-spinal fluid. Some attempts had been made to introduce salvarsanized or mercurialized serum into the cranium, but, on the whole, the clinical amelioration appeared to have been very slight; some such phrase as "no untoward sequels" was the most usual in the reports. With regard to tryparsamide, this was said to have been found of special service in America, but there was a risk with this treatment of producing optic atrophy. On the subject of pyrexial treatment, the question had been raised whether it was better to transfer the malarial blood from one patient to another or to employ the mosquito as intermediate host; so far as he was aware neither method had an advantage. With both methods there were patients who did not contract malaria, or the malaria disappeared after the patient had had six or seven rigors. Contraindications to malarial treatment could all be classed under one heading—namely, a poor general condition of the patient.

Sir JAMES PURVES-STEWART said that the term "general paralysis of the insane" was a clinical label some fifty years old; he suggested the name "progressive syphilitic encephalitis" for common use. Until a few years ago the disease appeared to be resistant to the most assiduous antisyphilitic treatment. The outlook had changed somewhat for the better during the past six or seven years. No true specific therapy was yet available, but a wave of therapeutic activity had appeared, and three lines of medication had been on trial: pyrexial treatment, especially malarial inoculation; tryparsamide; and salvarsanized serum, by itself or following a previous pyrexial course. Evidence that true specific treatment had not yet been attained was afforded by the fact that, despite occasional dramatic improvements, the serological reactions in the blood, and still more in the cerebro-spinal fluid, often remained positive; so long as this was so the disease could not be regarded as at an end. As a matter of clinical experience, benign tertian malaria had proved the most convenient method of inducing artificial pyrexia. Now and then a patient was found resistant to malarial inoculation, but an efficient series of pyrexial reactions could usually be produced by other means. The results of pyrexial treatment had been variously appraised. It certainly modified clinical symptoms, but it was not devoid of risk; he had known five patients die of cardiac failure during or shortly after a course of malarial injections. Many observers were content if the outstanding mental symptoms cleared up. In America good results had been obtained by tryparsamide treatment in a number of instances, and salvarsanized serum yielded comparatively favourable results. In order to supplement the clinical improvement achieved by the pyrexial course he had himself followed up malarial treatment with intracisternal injections of salvarsanized serum in the hope of securing serological results. He presented a series of 24 patients so treated, dating from 1922 to 1928, but mostly 1923 to 1925. Ten of these had remained perfectly well, clinically and serologically, for periods of from two to five years; 4 had improved for two or three years and subsequently relapsed; 2 others had slightly improved. He described one case, seen as a certified patient who was grandiose, incoherent, and had dysarthria. Malaria was first given, but the condition of the patient remained exalted and dysarthric. Salvarsanized serum was then tried, and the patient became mentally alert, the dysarthria being doubtful. In June, 1926, two years after the date when first seen, he was at home again, released from certificates; in January, 1929, he was still mentally normal, and had complete negative serological reactions in the blood and cerebro-spinal fluid. The speaker insisted that the standard of recovery should not be the mere remission or even the disappearance of clinical symptoms, but should also comprise the disappearance of the characteristic serological reactions.

Dr. J. BRANDER (Bexley) said that in general paralysis it was the diagnosis which was most likely to provoke differences of opinion. While acknowledging freely the great assistance to be derived from the laboratory both in diagnosis and control of treatment, he believed that serological examinations had introduced into the diagnosis of this disease an added source of confusion. There had been for some years a tendency to associate under the term "general paralysis" both the classical forms and the so-called neurological or mixed types, mostly on the basis of the serological findings, which might be very similar in the two groups. In mental hospitals the neurological type used not to be classified as general paralysis, but was called insanity with a gross brain lesion. Such patients responded in varying degrees to treatment, and were considered to have a much less grave prognosis, especially with regard to life, than was the case in general paralysis strictly so called. It was obvious that very different statistical results might be obtained according to the relative proportions of the two groups in a series. It was important from many points of view to discriminate between original general paralysis and the heterogeneous group of symptoms associated with it. The suggestion had been put forward that the character of general paralysis was changing, that it was less malign; but he had examined in detail the records of his own and his colleagues' cases for 1910–14 and for 1920–24, and found no difference in the character of the cases as between the two periods, except that the maximum incidence in the later period was in the age group 40–45, whereas in the earlier period it was in the age group 35–40. Instead of assuming a change in type he thought one should guard against any ready change of diagnostic standards. The speaker went on to refer to cases treated at Bexley with malaria. Since

1923 the number of patients with general paralysis so treated was 102; of these, 35 had recovered or very much improved, 16 had improved, 26 remained unimproved, and the remainder had died. Some patients who were apparently in a very advanced stage recovered to a remarkable degree, while some seemingly early cases went steadily downwards. The duration of symptoms prior to treatment, however, varied directly with the prognosis; 9.9 months was the average duration of the total series, compared with 6.4 months in those recovered sufficiently to be discharged. Among the discharged cases, 80 per cent. of those which it had been possible to follow up showed a decreased strength of Wassermann reaction in the cerebro-spinal fluid, 10 per cent. an increased strength, and 10 per cent. no change. Again, 50 per cent. showed a decreased strength of the reaction in the blood, and 45 per cent. no change. It would appear that malaria in itself was able in many cases to initiate the elimination of the virus of general paralysis, but if the disease process had attained a certain degree of severity there might continue to be manifest in the patient symptoms of progressive development not now of an actively syphilitic nature.

Dr. E. D. MACNAMARA (Charing Cross Hospital) held that malarial therapy offered hope for general paralysis, especially if combined with antisyphilitic treatment, always provided that it was only given in those cases in which the general health was such as to make it seem likely that the patient could bear up against the severe illness inflicted upon him. Records of remissions without any particular treatment were common even for such long periods as seven or eleven years. General paralysis might be long drawn out in its march; the longest case of which he had been able to find a record went on for twenty-five years. Therefore one should not be too sanguine about remissions, or lightly attribute them to a particular treatment. Periods of remission, again, might be very brief though apparently complete. The spirochaete had been found in the cortex of patients who had recently undergone malarial treatment. It should also be noted that in cases the earlier stages of which had been well or ill treated according to current practice, mental impairment and abnormal signs had been observed later, together with serum and cell changes. These were stages at which the application of malarial treatment was encouraged, but apparently the phase might last for years, and might disappear under antisyphilitic treatment or other forms of treatment, or the mere lapse of time. The moot point was whether the general assumption was not too embracing, and whether many such cases were not compatible with a meningo-vascular disease which would never, in the nature of things, become general paralysis at all.

Dr. F. H. STEWART (Cheddleton) described a modification of malarial treatment which minimized the suffering and danger to the patient. During the last two years he had treated cases by inoculating the patient in the usual way, and, after one or two rigors, stopping the attack by a thorough course of quinine. The general paralysis was generally affected by this short course of malarial treatment. After the quinine the patient was also treated actively with tryparsamide. In two months the same cycle was repeated, and repeated again until the patient had either recovered or it was clear that no further improvement was to be expected. Of 22 cases treated on this plan, 6 had been cured or greatly improved, 4 improved, in 7 the disease had been arrested, in 2 there had been no improvement, and 3 had died.

Dr. G. DE M. RUDOLF (Cane Hill) declared general paralysis to be a disease in which it was almost impossible to say that the patient had recovered; untreated cases had been known to undergo well-marked remissions. No recovery could be claimed unless the patient had shown a good remission up to at least the average age of death for the sex, and had died of some other complaint. He had seen cases previously treated with malaria become apparently normal clinically, but retain well-marked serological reactions; he had also knowledge of patients who had remained typical general paralytics, but with a normal spinal fluid. One patient after malaria remained euphoric and grandiose, but developed a completely negative cerebro-spinal fluid which later again showed positive findings, the clinical condition remaining unchanged. After referring to the report of a committee of members of the London County Mental Hospitals Service on the value of malaria, published in 1926 (*British Medical Journal*, ii, 1926, p. 603), the speaker gave his own personal statistics. His experience of malaria concerned 191 cases, some of which received arsenic in addition to malaria. Of the total, 31.4 per cent. had been discharged, and of the 89 cases treated with malaria alone 37.1 per cent. had been discharged. The highest discharge rate was among patients under 40, those with less than a seven months' history, and those in good physical health.

Dr. C. C. WORSTER-DROUGHT (West End Hospital for Nervous Diseases) gave an account of treatment by malarial infection followed by a course of novarsenobillon. He dealt only with cases which had been treated in 1923–24. No case was accepted unless, in addition to clinical manifestations, the Wassermann reaction was positive in both the blood and cerebro-spinal fluid. Of the 35 patients treated in the period mentioned, 20 per cent. were still at work and useful members of society; 50 per cent. might be said to have improved in the sense that they remained more or less the same, the progressive deterioration having been arrested; 20 per cent. had been admitted to mental hospitals or had died; and 10 per cent. could not be traced. He agreed with Dr. Rudolf in thinking that though the Wassermann reaction became negative this was not necessarily a criterion of the patient's improvement. With regard to mode of infection, he preferred blood transmission; the rigors developed as a rule more rapidly, appeared less exhausting to the patient, and were more easily controlled.

Dr. A. A. W. PETRIE (Banstead) gave an account of the treatment of general paralysis by relapsing fever, the material being obtained from the blood of mice infected with *Spirochaeta duttoni* and injected into the abdominal muscle. Of the 26 cases so treated, all of them having positive Wassermann reactions in the blood serum, and all but one positive reactions in the cerebro-spinal fluid, the figures prepared within a year of treatment showed 7 discharged improved, 5 with some improvement, 9 unchanged, 2 worse, and 3 dead. Of the cases which showed some improvement, a review after the second year proved that 2 had relapsed and 1 had died, but in the other 2 there was distinct retardation of the progress of the disease; while 3 of the 9 who had shown no change now showed retardation. The infection had not proved dangerous, and in 2 cases where pyrexia seemed likely to persist the giving of novarsenobillon appeared to check the trouble. The speaker also described 11 cases of injection with saprovitan, but the results were disappointing. Between 50 and 100 cases, some of them general paralysis, had been subjected at Banstead to inoculation with milk, 10 c.cm. of milk solution being injected into the buttock muscles. This appeared to turn on the question of sterility. Injection of sterilized samples usually produced no reaction of temperature, but injection of samples which, though brought to the boil or pasteurized, still contained saprophytic bacteria, produced temperatures of 102° and 103°, without, however, abscess formation or other evident sepsis. It seemed probable that the results claimed for this method were mainly due to the reaction to organisms which still remained in the injected fluid, and not to a protein reaction.

Surgeon Rear-Admiral E. T. MEAGHER, R.N., who reopened the debate on the second evening, gave an account of a survey which he had made of the cases treated by malaria in the mental hospitals of the country and those not so treated. Of 97 mental hospitals, 56 had not so far practised the malarial treatment of general paralysis. Taking the years 1923 and 1924, his figures showed that of the patients treated with malaria among the direct admissions for general paralysis during those years, 56.4 per cent. were still alive, whereas of the untreated cases only 13.4 per cent. remained alive. The inference, whatever test was applied, was that the treated had done better than the untreated. Of 438 cases treated to the end of 1924, 134 had been discharged, and 108 of this number remained discharged. He had made personal visits to the discharged patients, and he could affirm that 77 of them were able to follow their usual avocations, 10 were mentally fairly well,

but fit for only little work, 10 were degenerating, and 11 could not be traced. He was impressed in many cases by the attention to dress and appearance which these discharged patients showed; their good memory; and the fact that their grandiose manner had disappeared. He had been convinced that malarial treatment was of value in extending life, in improving the physical and mental state, and in allowing some 20 per cent. of patients to resume a normal existence.

Dr. THOMAS TENNENT gave an account of some experiments in the intravenous injection of tryparsamide; out of 50 patients, 16 showed good remission and 13 others moderate remission. His conclusion was that tryparsamide was a valuable drug, the action of which was assisted by combining it with fever therapy, malaria being the safest form.

Dr. J. G. GREENFIELD (National Hospital for the Paralysed and Epileptic) commented on one or two cases within his observation in which the crisis of malaria had been so severe in patients already weakened by disease that they had succumbed more or less directly to the malaria; the majority who had died had done so as a result of lung complications, occurring mostly in the winter. A striking fact was the rapid disappearance of spirochaetes from the brain in general paralysis after malarial treatment. The changes in the brain included a very great increase in inflammatory reaction occurring almost immediately after malarial treatment had started; it was not surprising that when there was this acute encephalitis with malarial infection there was a tendency for the patient to die from concurrent infection. He emphasized the need for reinforcing malaria with salvarsan. In the early days there was a tendency to think that malaria did the work by itself, but the evidence afforded by pathological examination had rather shown that the disease in the brain changed from the type which it was customary to find—the degenerative changes of general paralysis—to the changes associated with acute cerebral syphilis, and, of course, this had to be treated by salvarsan just as in any other case of syphilis.

Dr. D. NABARRO described the treatment given at the Children's Hospital, Great Ormond Street, in cases of congenital syphilis, quite a number of which showed involvement of the central nervous system. The symptoms encountered in children were, of course, different from those in adults suffering from general paralysis; they usually included fits and progressive mental deterioration. Methods had been adopted of treating these patients with the object of rendering the spinal fluid normal—namely, malaria and intracisternal injections of salvarsanized serum. Malaria had been given in 13 cases of congenital neuro-syphilis, only 5 of which were cases of juvenile general paralysis of the insane. No striking improvement had occurred, either clinically or serologically, in most of these cases. He was inclined to think that the benefit of malarial treatment in neuro-syphilis was not great, and that more marked benefit followed intracisternal injections.

Dr. HANS DEUTSCH (St. Louis) gave an account of the technique employed in a clinic in which malaria was always inoculated from patient to patient; if the patient did not react to the ordinary subcutaneous inoculation an intravenous injection was given. Malaria alone had never been given during the last few years, but was followed by the usual course of salvarsan. A remarkable effect was the change in the glia cells, which returned to normal. It was impossible to speak of cures, but merely of remissions, because nervous tissue would never regenerate.

Dr. GLEN DUNCAN (Severalls) reported 41 cases of general paralysis treated by malaria; all were fully investigated by routine diagnostic methods. The mortality was fairly high, 7 out of the 41 dying within two months of inoculation. In 20 the results were good, in the sense that the patient had so far recovered from his mental symptoms that he could no longer be detained under certificate. The average duration of symptoms in the patients with whom a good result was obtained was twelve months, which, curiously enough, was rather longer than the average duration in cases in which good results were not obtained.

Dr. W. D. NICOL (Horton) said that the ideal thing in the selection of cases was to get the patient as early as possible, but advanced cases had shown benefit from treatment; the obese type reacted badly. At Horton patients had now been treated for just over four years, and it had been found extremely useful to give small doses of quinine; this tended to reduce the mortality. At Horton the method of mosquito inoculation had been invariably practised. The results in the first 100 cases showed that 50 per cent. of the manic and grandiose types had remissions; about 35 per cent. of the depressed type did well; but the simple dement type, which was by far the largest group, did badly, only about 12 per cent. remitting.

Dr. KUBIE (New York City) thought it justifiable to say that where there was no defect in the intellectual functions the diagnosis could not be made with any certainty on positive serological findings. The cases which showed defective intellectual functions could be divided into two groups—one essentially delirious, and the other non-delirious, but showing progressive deterioration. Delirium, however, was not always an acute florid episode, though it might be this at times, and between this and the slow deteriorating state there were all gradations. He believed that true deterioration was a stage which was reached only as a result of long and slowly progressive cortical damage; but many paretics and many neuro-syphilitics who were not paretics showed one or more delirious episodes. It was not always easy to tell whether one was dealing with a delirious state or with a deterioration. Dr. Kubie also contributed some remarks on the treatment of the disease with arsenicals.

The two openers briefly replied. Dr. STODDART concluded from the discussion that of all the treatments devised for the disease that of malaria had the best record, but that some reinforcement was necessary, though the means suggested for reinforcement were not as yet, to him, very convincing. He was inclined in the future to follow a suggestion made by Dr. Nicol to use the quartan malaria instead of the tertian. Perhaps some of the erroneous diagnoses were due to over-importance being attached to serological tests. He now saw that treatment by occipito-atlantoid puncture seemed to have justified itself. Sir James PURVES-STEWART reiterated his belief in the efficacy of occipito-atlantoid puncture, and described the method by means of a diagram. He further stated his faith that when an unfortunate victim of this disease had sustained serious damage to his vital cerebral and cell constituents no good purpose was served by efforts to keep him alive.

OSTEO-ARTHRITIS AND CHRONIC RHEUMATISM.

Two Sections of the Royal Society of Medicine last week dealt on successive days with the above general subject, in the one case from the point of view of spa treatment, and in the other from that of electrotherapy. In the Section of Balneology the chair was taken by Dr. KERR PRINGLE, and in that of Electro-Therapeutics by Dr. J. E. A. LYNHAM. One or two speakers contributed similar remarks to both discussions.

Dr. R. G. GORDON (Bath), in opening the first discussion, which was on osteo-arthritis, said that this condition was not a clearly defined clinical entity, for it might appear as a disease *sui generis* or as a terminal phase in other forms of arthritis. Infection did not seem to play a direct part in its pathology, though it might be a contributory cause of its more direct precursors. These seemed to be strain and failure of adequate circulation through the joint. The strain might be sudden in the form of injury, or gradual, owing to postural defects; it was significant that the lower limbs were more affected than the upper. Its correlation with coxa plana in children was striking, especially as the latter often passed unrecognized. Defective circulation caused impaired nutrition and degenerative changes, and when pain by muscular spasm did not stimulate artificial protection and splinting of the joint, the destruction might be very severe. Pain varied considerably in osteo-arthritic joints, and this might be related to the nutrition of sensory nerve-endings. Deformity might be increased by muscles and ligaments finding new and abnormal attachments and exerting unaccustomed traction. Treatment must be directed to preventing strain and improving the nutrition of the joint. For the first, properly fitting splints were most useful; for the second, heat associated with well-

considered massage to the muscles rather than to the joint. Theoretically surgery must have a wide field in treatment, but practically this was not so, since the patients seldom could stand severe operations. Sulphur preparations did some good in view of the interference with sulphur metabolism found in this condition.

Dr. J. A. THOMSON (Harrogate) gave an account of the radiographic appearances of the affected joints, and displayed on the screen a large number of radiographs of various joint conditions, giving his interpretations of them. An incidental point was that the presence of osteophytic growths in women was quite rare, and he had seen two cases only. The radiograph, in Dr. Thomson's opinion, was more an indication of the patient's resistance than of the disease. He considered that the plane which radiography had now attained entitled it to a place in the laboratory study of the origins and course of the processes of disease.

Professor TOM HARE gave an account of the chemical estimation of synovial fluid and blood serum of horses affected with chronic arthritis.

Dr. HENRY COHEN spoke in amplification of the same subject from the clinical side, and went on to take up some of the points raised by Dr. Thomson regarding radiographic changes. In Dr. Cohen's view the radiographic changes were not specific for osteo-arthritis; similar changes were found in the early stages of gouty disease of joints. What struck him as a clinician was that not infrequently the radiographic changes were most marked in the hip of which the patient complained less. Too much reliance must not be placed on radiographic changes; early clinical changes, particularly rigidity of the joints, were an indication of something wrong.

Dr. G. E. VILVANDRE defended the absolute value of radiography in osteo-arthritis. The condition was a definite entity, which by means of radiographs could be shown thoroughly well.

Dr. PHILIP FIGDOR believed that osteo-arthritis was always a traumatic condition, and should be treated as a local condition just as much as a fracture. By "traumatic" he meant that in all these cases there was injury, stress, or strain. He favoured treatment by means of diathermy, as being the only form of electrical current which the administrator could direct.

Dr. J. F. BRAILSFORD suggested that the occurrence of osteo-arthritis in abnormal joints was most likely due to increased and abnormal strain to which the deformity subjected them. It had been stated that when changes were evident in radiographs damage to the articular surface was so severe that little improvement could be seen in subsequent radiographs after treatment; on the other hand, the changes shown on the radiograph were typical of the condition and therefore most valuable in differential diagnosis. One frequently saw patients who were complaining of pain in a joint or joints which may have commenced without definite injury, though as a rule there was a history of excessive and strained movements. The radiographs showed no abnormal change, but the removal of a focus of sepsis caused the condition to clear up in a phenomenal manner, though it had failed to respond to other forms of treatment. Failure to locate and remove the toxic focus resulted in the occurrence of insidious destructive changes in the joints. Patients frequently experienced long periods of comfort between bouts of pain, and probably on this account failed to subject themselves to active treatment. Only when there were limitation of movement and marked osteo-arthritic changes did they first submit themselves to radiographic examination. Generally the pain in the early stage was more severe than in the later, when the most marked feature of the condition was limitation of movement. The radiographic evidence suggested that the lesion was caused by the action of a toxin on damaged or strained cartilage and bone.

Mr. WHITCHURCH HOWELL, as an orthopaedic surgeon, thought that the earliest sign of osteo-arthritis of the hip was trauma, followed as a rule by synovitis of the hip, but this the patient often regarded as trivial, and did not seek advice. If only cases were brought under treatment earlier much more could be done for them. Osteo-arthritis of the shoulder he regarded as very prevalent; it was often overlooked. He illustrated the advantage of fixing the arm well above the patient's head, instead of strapping it to the front of the body; by the former method a free range of movement would eventuate.

Dr. KERR PRINGLE insisted that osteo-arthritis was not a local disease, but a general disease, with local manifestations. He also criticized the quality of the radiographs which patients brought with them; often a fresh set had to be taken, not only to ascertain the extent of the damage, but to prove to the patient that disease was present.

Dr. R. G. GORDON, in reply, could not quite agree with Dr. Cohen that all stiffness of joints was necessarily a sign of osteo-arthritis; there were many stiff joints in which the more grave condition did not exist. While agreeing that diathermy was a valuable adjuvant, he hoped the Section would not be led away into thinking that it was the treatment for osteo-arthritis.

Electrotherapy in Rheumatic Disorders.

Dr. CHARLES W. BUCKLEY (Buxton) opened this subject with some account of spa electrotherapy. Where the waters at spas were only used internally electrotherapy was largely applied, but where a bath technique had been developed upon the results of which the fame of the spa was based, electrotherapy was less popular. Of the various methods he had found ionization of most value; it was the action of the constant current on the tissues, not the nature of the ions used, that produced the most effect. Diathermy had given good results in his hands, especially in spondylitis deformans and arthritis of the sacro-iliac and hip joints, or where deeper penetration was required than could be obtained with certainty by means of ionization. Chronic arthritis associated with much muscular wasting called for faradism or galvanism to the muscles. The static treatment and the older forms of high frequency had proved disappointing in his hands. The high candle-power electric lamp was very effective, especially in fibrositis of the back or shoulders and in sciatica. Rheumatic subjects appeared often to be hypersensitive to sunlight rays, and long exposure to the sun was frequently followed by increase in pain and stiffness. He had seen good results from deep ray therapy in two cases of spondylitis deformans.

Dr. F. D. HOWITT said that chronic rheumatism did not kill, and for that reason it had escaped until recently the medical attention it deserved. No one cause would explain all rheumatic conditions. Among the predisposing factors climate played an important part. Treatment resolved itself into two parts—namely, arrest and cure of the disease, and the correction of the results of the disease. The fact that removal of obvious sepsis in many cases did not give amelioration of symptoms might be explained by the fact that the organism was lodged in various parts of the body in sufficient quantity to produce resensitization. He thought the beneficial results obtained by electrotherapy and actinotherapy were attributable to the application of heat, elimination of waste products, and stimulation of the skin.

Dr. M. B. RAY discussed the question of accessory treatments at spas. There had been an increasing tendency to supplement the natural resources of spas by recourse to methods which at first sight might seem superfluous. He proceeded to justify by an interesting argument based on the theory of disease the combination of spa treatment with physical and electrical methods. He also stressed the function of the skin as the principal adaptive organ of the body. By the judicious use of biochemical measures the adaptive resources of the skin might be stimulated and reinforced.

Dr. AGNES SAVILL gave a description of some cases which she had been able to watch over a long period. One was a young woman who had developed a widespread arthritis, and finally went to Austria, where she was put on diathermy and a diet consisting of sweets, cakes, bread, and water. She was worse on her return, but by a readjusted diet, in which the protein allowance was made adequate, and very cautious administrations of ultra-violet radiation, with diathermy for twenty minutes four times a week, she steadily improved, and had been undoubtedly saved from a serious rheumatoid arthritis.

Dr. E. P. CUMBERBATCH said that it was now established that a number of cases of arthritis in women were due to an infection which arose from a primary focus in the cervix uteri. It was now the custom in his department at St. Bartholomew's to expose the cervix uteri, and if chronic infection was discovered, not necessarily gonococcal, the cervix was subjected to diathermy, and in about 70 or 80 per cent. of the cases the arthritis was brought to an end. He and his colleagues also believed that the arthritis due to disturbance in the ovarian endocrine function was closely related to disturbances of menstrual function, and these cases had been treated by applying diathermy to the ovaries.

Dr. KERR RUSSELL said that recently he had had the privilege of visiting a number of treatment centres abroad, and in no single case did he see ionization treatment administered, but in a well-known clinic in Amsterdam he saw fifteen ultra-violet lamps in constant use. He considered ultra-violet radiation to be a very useful adjunct in the treatment of rheumatic conditions.

Dr. G. B. BATTEN suggested that the static wave current (the Morton current) was the best form of electrical vibration to be obtained. If applied properly, it not only attacked the whole muscle, but all the fibres and cells of the affected parts.

Dr. A. E. BARCLAY asked what had happened to the classification of rheumatism. Were they all treating rheumatism blindly, or had they come to the conclusion that rheumatism was an end-result?

Dr. C. A. ROBINSON, Dr. Cumberbatch's colleague, in reply to a question as to how diathermy was applied in the male in the corresponding condition to that of which Dr. Cumberbatch had spoken, said that they had been led to treat the cases of arthritis associated with amenorrhoea in young women by the results they had obtained in heating the prostate in men. In selected cases striking results were obtained in the arthritis of men by heating the prostate with diathermy.

Dr. ALASTAIR MACGREGOR remarked on the ease with which bruising took place in these subjects when there was infection of the colon.

Dr. BUCKLEY, in replying, said that a great deal of importance must be attached to splinting in the acute forms, but if splinting was adopted rigidly, as it frequently was, the condition might be made worse. With regard to ultra-violet radiation, this might be an advantage in rheumatism, but with a patient seen for a limited time it was a great mistake to subject him to a treatment of doubtful value, particularly when one was surrounded by apparatus which one knew to be efficient.

CALCIUM METABOLISM AND TETANY.

AT a meeting of the Aberdeen Medico-Chirurgical Society on February 7th, with the president, Professor ALEXANDER LOW, in the chair, two papers on closely associated topics were read, one on calcium metabolism by Dr. ALEXANDER LYALL, and the other on infantile tetany by Dr. JAMES A. STEPHEN.

Dr. Lyall dealt with the subject mostly from the aspect of the calcium content of the blood and its alterations in experimental and pathological conditions. He described briefly the principle of the method of estimation of the calcium of the blood. The serum from clotted blood was usually taken for this purpose, and the calcium precipitated as the oxalate. This precipitate was dried and converted to the carbonate, and the amount of calcium estimated by dissolving the precipitate in standard phosphoric acid. Dr. Lyall said that the calcium content in health was very constant—about 10 mg. per 100 c.cm. of blood, with from 9 to 11 mg. as its widest limits. The actual formation of the calcium was not known; it probably existed partly as the chloride, phosphate, and the bicarbonate, and partly as a colloidal calcium phosphate stabilized by the blood proteins. About 60 per cent. of the total was present in a diffusible form, while the remainder was bound to protein and non-diffusible; part of the diffusible fraction was ionized. Dr. Lyall discussed the experiments of Percival and Stewart showing the existence of a diffusible fraction by the injection of calcium containing fluid and calcium-free fluid into the peritoneum of the cat. The fluid recovered always contained about 6 mg. calcium per cent. He also demonstrated a sample of fluid from the pleural cavity in a case of polyserositis. The fluid contained 7 mg. of calcium per cent., while the serum content was 9.2 mg. per cent. The speaker then detailed in tabular form the conditions under which alteration in the amount of blood calcium might occur.

A. Calcium decreased.
  1. Experimental:
    (*a*) Parathyroidectomy.
    (*b*) Phosphate injection.
    (*c*) Ovarian extract injection.
  2. Pathological:
    (*a*) Tetany { Infantile. / Adult ... { Nephritic acidosis. / Alkalosis.
    (*b*) Rickets.
    (*c*) Nephritis with oedema.
    (*d*) Long-standing sepsis.

B. Calcium increased.
  Experimental:
    (*a*) Administration of calcium { by mouth. / intravenously.
    (*b*) Administration of parathyroid extract.

C. Changes in the ratio of diffusible fraction.

Dr. Lyall illustrated his remarks by describing the chemical findings in a case of alkalotic tetany due to persistent vomiting, and in two cases of tetany occurring in the uraemic state where the blood calcium had fallen as low as 5 mg. per cent., with a concurrent increase in blood phosphates to 25 mg. per cent. Discussing the recent work on the effect of calcium or parathyroid administration on the production and resolution of effusions, Dr. Lyall said that the experimental findings did not wholly justify their employment clinically, and that therapeutic use of these substances was in danger of advancing ahead of experimental ratification.

Dr. Stephen followed with a short paper on infantile tetany, and dealt chiefly with the symptoms, diagnosis, and treatment. Photographs were exhibited illustrating the carpo-pedal spasms in a case of "manifest" tetany, and showing Trousseau's sign induced in a case of "latent" tetany by pressure on the upper arm. In discussing the etiology and the association of tetany with rickets, he referred to Professor J. J. R. Macleod's work on this subject, where three theories were discussed: (1) the intoxication theory; (2) the calcium deficiency theory; (3) the theory of disturbed acid-base equilibrium. The conclusion was reached that the theory of calcium deficiency was supported by much unequivocal experimental data and the final isolation of the parathyroid hormone (Collip) definitely associated the parathyroids with calcium metabolism. Macleod, however, had summed up by stating that of the three theories no single one was sufficiently comprehensive to explain all forms of tetany, and the tetany syndrome need not necessarily be regarded as an entity. It was a manifestation of neuro-muscular excitability. Dr. Stephen then detailed the treatment of tetany, pointing out that the therapeutic indications were twofold: (1) to remove the constitutional abnormality by regulation of the diet—mainly on antirachitic lines; and (2) while the abnormal excitability lasted, to ward off and relieve the more serious of the nervous attacks. Breast milk was advisable for young children, and the amount of cow's milk, especially its fat content, should be reduced; skimmed lactic milk had been found useful. For older children additions should be made to the diet of foods rich in calcium, such as cabbage, turnip, and oatmeal in the form of vegetable purée. Cod-liver oil should be given in all cases. The chief hygienic measure was to have the child nursed in the open air and sunlight as much as possible; where this was impracticable ultra-violet light could be applied. The medicinal treatment consisted in the administration of acids given as hydrochloric acid, calcium chloride, or ammonium chloride, and for the spasms chloral hydrate by the mouth or the rectum. He also mentioned that Clendening had recommended in severe cases the intravenous injection of calcium salts or Collip's extract of parathyroid gland—5 units per kilo of body weight for each milligram of calcium rise desired, but that he had had no personal experience of this treatment.

Reviews.

TEXTBOOKS ON UROLOGY.

UROLOGY[1] by EDWARD L. KEYES, professor of urology at Cornell University, is the lineal descendant of *A Practical Treatise on the Surgical Diseases of the Genito-Urinary Organs*, published in 1874 by W. H. Van Buren and E. L. Keyes. Like it predecessor it is based almost entirely on clinical knowledge. The author in his preface admits to "a certain impatience with second-hand knowledge," and has drawn almost entirely on a store of personal experience accumulated during many years of urological work. The usual anatomical, embryological, histological, and bacteriological chapters that are found at the beginning of most textbooks of urology have been omitted, and the reader is brought immediately to the subject of the physical examination of the patient. Following this are chapters on genito-urinary instruments, cystoscopy, radiography, and renal function tests. Some may consider that the author is over-dogmatic, but the majority of readers will welcome the precise nature of the instructions contained within the covers of this book. Only those methods of treatment of which the writer has direct personal knowledge are described. This, of course, results in certain omissions; for example, in the chapter devoted to the treatment of strictures no mention is made of the use of the Kollmann in dilatation, or of the radical operation of excision. But in a book of this kind such omissions are inevitable, and the disadvantage of their occurrence is more than outweighed by the advantage of knowing that the methods of treatment that are described are endorsed by the personal experience of such an authority as Dr. Edward L. Keyes. Textbooks are too often constructed out of textbooks, mixed with a small amount of original experience. Statements which appear in one are served up in another without sifting the corn from the chaff. Dr. Keyes has no patience with such methods. Thus, of the trabeculation found in tabetic bladders he writes, "Many cystoscopists have described types of bladder trabeculation as characteristic of the tabetic bladder. None of these descriptions has fulfilled its purpose. The paralysis does cause a trabeculation more marked than one would expect to find as the result of a given retention. But this difference is in no way characteristic. The only cystoscopic evidence of bladder paralysis is the open internal sphincter." What the average surgeon asks for when he consults the work of an authority is for clear instruction as to the right method of treatment. He does not wish to be told that certain methods may be of use or that this or that authority has reported favourably of another. The author of *Urology* tells him in no uncertain voice what he should do. What could be more precise than his advice on operations for injury to the kidney? "The next question that arises is the viability of the kidney. If more than one-third of the kidney appears to have lost its blood supply nephrectomy will be required; if less than one-third the necrotic portion may be excised, or if it is small left undisturbed. There is little value in suturing ragged tears in the kidney substance, a tube drain will be left in the loin." Even in chapters dealing with troubles concerning which our knowledge is inexact and often highly theoretical the same clearness of expression is maintained. The author would probably be the last to lay claim to any special knowledge of psychology. Nevertheless the average reader will obtain more insight into functional derangements of the sex organs from a perusal of chapter xiv than after copious reading in special volumes dedicated to that subject. Every practitioner who deals with sexual disabilities knows how difficult it is to handle these troubles. Each specialist has his own favourite formula for treatment. Their numbers attest their fallibility. "Try," says Dr. Keyes, "to make hygiene and psychology dominate over practice. I never guarantee success from local treatment. I attempt to plumb the patient's sexual ideals, habits, and history before beginning local treatment." The chapter on derangements of the male genital organs contains very few of the technicalities of psychology, but a great deal of common sense. *Urology* is a book based on the principles and practice of a lifetime. Its strongly individualistic note is not the least of its merits.

Another *Text-Book of Urology*[2] from America is by DANIEL N. EISENDRATH, a Chicago urologist, and HARRY C. ROLNICK, associate urologist, Mount Sinai Hospital. The book has been expressly written for the general practitioner and the medical student. The authors state that in the numerous works on this subject in current use there is a tendency towards over-specialization. The surgical side is stressed at the expense of the study of the genital tract and of venereal diseases. They aim at remedying this defect by publishing a book which deals with diseases of the male genitalia in as thorough a manner as possible. If this is the main object of the work it may be at once conceded that the authors have achieved their desire. The chapters on the genitalia and their diseases are undoubtedly the best in the book. Common conditions, such as epididymitis, vesiculitis, enlargement of the prostate, and varicocele—in other words, the complaints most frequently met with in general practice—have been treated with extreme thoroughness and judgement. Chapter xxv, on the vas deferens, spermatic cord, and epididymis, is especially good. One of the authors has previously published original experimental and clinical observations bearing on infections of the epididymis, and as a consequence the pages dealing with this condition have a special value. Contrary to the old teaching he has found that blood-borne infections of this structure are by no means infrequent. The initial site of such infections is in the tail of the epididymis, and is interstitial or peritubular rather than within the lumen of the canal. The authors are of the opinion that in tuberculosis, as well as in non-tuberculous infections of the epididymis, the path of invasion is through the blood stream. In only a few cases do they consider that primary infection lies in the prostate and vesicles. Chapter xxviii, on sexual impotency and sex neuroses, has been contributed by Dr. Irvin S. Koll. If this is to be criticized it is on the score that cases of impotency, in which an organic lesion is discoverable, have been given too large a place and the far commoner condition of psychological impotency scamped. It is this latter type of case that presents such great difficulty to the general practitioner, and we would have liked to see more space allotted to it. The treatment of these patients falls, however, within the province of the psychologist rather than of the genito-urinary expert, and it may be for this reason that Dr. Koll has not gone more fully into the matter. After reading a work such as this, written expressly for the general practitioner and student, many thoughts come into one's mind. Can any practitioner of ordinary mental calibre and attainments be expected to acquire a quarter of the knowledge that is provided for him? Granted that all unnecessary details have been eliminated, enough still remains to stagger even the most courageous of readers. In our opinion Eisendrath and Rolnick's work will be mainly valuable as a work of reference to which practitioners and students may turn. It will also be of service to those general surgeons who wish to revise their knowledge of urology as quickly as possible. In its printing considerable use has been made of heavier type to emphasize statements that the authors consider of primary importance. It is therefore possible to glean the main features of any disease and the salient points in its treatment with a minimum of reading. The fact that such a method of writing must of necessity entail a dogmatic attitude is an advantage rather than a disadvantage. It is unnecessary for the average student or practitioner to know that views opposite to those held by the authors may be in existence. A precise and emphatic mode of exposition is essential in such a work. Full advantage has been taken of illustrations, diagnostic tables, and diagrams as a means of presenting the subject in as brief and comprehensible a form as possible.

[1] *Urology*. By Edward L. Keyes, M.D., Ph.D., F.A.C.S. New York and London: W. Appleton and Co. 1928. (Roy. 8vo, pp. xix + 765; 184 figures, 20 plates. 35s. net.)

[2] *Text-Book of Urology*. By Daniel N. Eisendrath, M.D., and Harry C. Rolnick, M.D. London: J. B. Lippincott Company. 1928. (Med. 8vo, pp. vi + 942; 711 illustrations, 11 in colour. 42s. net.)

HAEMATOLOGY.

Elementary Haematology,[3] by Dr. W. E. COOKE of Wigan, is a concise handbook for students and practitioners on the methods of examining the blood and on the principal diseases of the blood-forming organs. After a useful account of the technique, the embryology and pedigree of the circulating cells in the blood, the normal and pathological forms of the red and the white blood cells are described. To supplement the text, photomicrographs, successful so far as they can be, are introduced, the author explaining that coloured drawings have not been used because it is the first essential that students should recognize structure rather than colours. This, however, is hardly a convincing argument, as stains are necessary, and great help can undoubtedly be given by exact representation of the appearances thus produced. In the chapter on the polynuclear count the Arneth count is described, and the five classes of the polymorphonuclear leucocyte are figured. The value of the Arneth procedure in ascertaining the presence and the severity of an infection is acknowledged, and an indication is given of the assistance it may afford the physician in making a prognosis. Dr. Cooke then summarizes the various forms of anaemia in a thoroughly up-to-date manner from the etiological, clinical, haematological, and therapeutic points of view. Accounts of splenic anaemia, acholuric jaundice, the leukaemias, purpura, Hodgkin's disease, and Gaucher's splenomegaly are on similar lines. Under the heading of splenic anaemia the term "Banti's disease" appears as a synonym, whereas it would be better to reserve the eponymic title for the later stage in which cirrhosis of the liver has supervened. Brief mention is made of "Hodgkin's cirrhosis" of the liver—presumably lymphadenoma with fibrosis of that organ is meant, but this being an unfamiliar phrase deserves some such explanation. Erythraemia and erythro-leukaemia (or the combination of erythraemia and myeloid leukaemia—a pan-myelosis), are also succinctly described. The clearness and brevity of this handbook should make it a useful companion to the student working in the wards, who will probably forgive the absence of references to authorities.

In his monograph on the clinical significance of qualitative changes in white blood corpuscles[4] Dr. WALTHER GLOOR attempts to correlate the changes observed in the nucleus and protoplasm of the polymorphonuclear leucocytes with the severity of infection as reflected by clinical evidence. He contrasts the morphology and staining reactions of the protoplasm, granules, and nuclei of the white blood corpuscles in healthy and in diseased conditions, and finds that the ageing of the nuclei, as determined by the fine reticular structure and the degree of pyknosis, does not necessarily go with the amount of nuclear segmentation. Dr. Gloor regards the five classes of polymorphonuclear leucocytes of Arneth as unnecessary, and gives preference to the method known as "Schilling's haemogram"; but for practical purposes he considers that both these schemes are unreliable and of doubtful diagnostic or prognostic value. He suggests, in agreement with Naegeli, that some of the cells with unsegmented nuclei are not young cells from stimulated bone marrow, but injured forms of mature cells derived from the site of infection. From the results of his clinical and experimental observations Dr. Gloor concludes that the qualitative changes in the leucocytes resulting from an infective process are referable partly to reaction of the bone marrow and partly to activity of the white corpuscles themselves at the site of infection. When the infection is by toxic action, and local inflammation is in abeyance, there is more nuclear and less protoplasmic change; there is stimulation of the bone marrow, and a shift to the left of the nuclear classes. But toxic protoplasmic changes, with the production of "toxic granules," result from a local inflammatory focus. The early and late stages of lobar pneumonia are illustrations of local and general toxic infection. The book is accompanied with twenty-nine figures in the text and four coloured plates. There is also a good bibliography.

[3] *Elementary Haematology: A Handbook for Students and Practitioners.* By W. E. Cooke, M.D.Liverp., F.R.C.P.Ed. London: C. Griffin and Co., Ltd. 1928. (6 × 9, pp. viii + 100; 54 figures. 7s. 6d. net.)

[4] *Die klinische Bedeutung der qualitativen Veränderungen der Leukozyten.* Von Priv.-Doz. Dr. Walther Gloor. Mit einem Vorwort von Professor Dr. O. Naegeli. Leipzig: G. Thieme. 1929. (6½ × 10, pp. 89; 29 figures, 4 plates. M.12.)

PATHOLOGY OF THE NERVOUS SYSTEM.

WITH the publication by Masson of the twenty-first volume of their *Nouveau Traité de Médecine*,[5] edited by MM. ROGER, WIDAL, and TEISSIER, there has appeared the third of their four volumes devoted to a description of the pathology of the nervous system. This well maintains the high standard set by the two former volumes, and should find a place in every medical library as an authoritative work of reference. Dealing as it does with the peripheral nerves, the sympathetic nervous system, and the neuroses, it has a very wide field to cover, and requires all of its nine hundred large pages to deal adequately with this material.

The affections of the peripheral nerves, including the roots and trunk, are all described by Dr. Tinel in chapters which are unsurpassed in wealth of detail and profuseness of illustration. This section of his work is admirable in every way, and no exception can be taken to his method of treatment. It is a pity that affections of the trigeminal and facial nerves have been reserved for another volume dealing with the cranial nerves as a whole, for it would have been a great advantage to have had here included Dr. Tinel's views upon tic-douloureux and facial palsy, both of which still require much elucidation as far as the ordinary phenomena of their occurrence are concerned, and stand in marked contrast to lesions of other peripheral nerves. None of the other sections of the book enjoy the same unity of authorship, and all fall below its standard. They deal with difficult material of which much more is known clinically than has been established pathologically, and few clearly cut syndromes can be established. Epilepsy as a symptom always secondary to some essential disturbance is treated in a very thorough manner, with full attention to recent work and views on etiology, site of origin, nature of the phenomena, etc., and the chapter on the migraines is almost as exhaustive. In the final chapter Dr. Crouzon has collected together many genealogical records of patients with diseases of the nervous system which appear to have some familial and hereditary incidence. His discussion of these and their bearing upon Mendelian doctrine is of extreme interest.

There is a tendency throughout this volume to discuss the diverse views of the authorities quoted without sufficient critical evaluation of their work and its claim for consideration. This arises, no doubt, from the authors' desire to be as comprehensive and impartial as possible. Further, from its essentially anatomico-physiological point of view the book lacks the living interest which is always inspired by a clinical approach to the phenomena and syndromes of disease. It is, nevertheless, a work which commands respect, and takes unchallenged place as a standard treatise in this field.

SURGERY OF BRAIN TUMOURS.

DR. OLIVECRONA, in his Surgical Treatment of Tumours of the Brain,[6] gives a detailed record of 85 cases of cerebral tumour operated on by him. The general results as regards those tumours, the nature of which was verified, were as follows. Of 28 supratentorial gliomata about one-half died from the operation, one-fourth within a few months, and one-fourth showed improvement; in 8 of the cases a partial or total excision was possible, with complete relief of symptoms after from three months to one and a half years from the operation; simple decompression showed much less favourable results, all the patients, except one, dying within nine months. Of the patients with subtentorial gliomata, 5 died as the result of the operation, and 4 lived for one to two years with relief from symptoms. Of 7 patients upon whom complete excision of meningiomas was performed, 4 died as the result of the operation,

[5] *Nouveau Traité de Médecine.* Publié sous la direction de MM. G. H. Roger, Fernand Widal, P. J. Teissier. Fascicule XXI: Nerfs-Sympathiques. Névroses. Paris: Masson et Cie. (Roy. 8vo, pp. viii + 900; illustrated. 85 fr. sans majoration.)

[6] *Die Chirurgische Behandlung der Gehirntumoren.* Von Dr. Herbert Olivecrona. Unter mitwirkung von Dr. E. Lysholm. Berlin: J. Springer. (Sup. roy. 8vo, pp. iv + 344; 228 figures. R.M.27.)

while 3 were practically cured. Of eighth-nerve growths, 9 enucleations were followed by 2 deaths from the operation, with cure or improvement in 7 cases; one decompression ended fatally, as did one case of cyst drainage and one of partial excision of bilateral growths. Of 2 congenital cystic tumours of the infundibulum, one partial excision ended fatally, while one complete excision showed freedom from symptoms six months after operation. A very large cholesteatoma of the lateral ventrical was completely cured by extirpation. An excision of a tuberculoma ended in death from tuberculous meningitis within two months, and an attempt to extirpate a large angioma of the vermis was relinquished on account of haemorrhage, the patient dying on the day following a second operation.

INFANT FEEDING.

AFTER the production of many volumes by specialists on the feeding of infants it is interesting to read the views and experience of a general practitioner, and for this reason Dr. HOWARD B. GLADSTONE'S book *Clinical Observations on Infant Feeding and Nutrition*[7] is welcome. The author states in his preface that he has not had so much time as he would have liked in which to analyse the clinical material that came under his notice, and this may perhaps account for such generalizations as that healthily breast-fed children may "often put on a pound a week and are all the better for it," and also for a certain lack of clearness here and there in the presentation of opinions and procedure. On page 17 there is a heading "Methods of humanizing the milk," but no details are given until a later chapter (p. 32). Certain methods of diluting milk are set out and labelled Diet 1, 2, 3, 4, etc., and attached to each is the statement that the caloric value is, for example, "200," but whether this is per ounce or per feed or per day is not stated. In regard to pyloric stenosis, we note that Dr. Gladstone recommends medical treatment up to a point, with the injunction that a surgeon should be called in if these measures fail; this is not in accordance with modern teaching. Speaking generally, his results in the treatment of ailing babies appear to be remarkably good. Thus from his record of a bad epidemic of infective colitis with which he had to deal, we learn that he treated 103 cases in the homes of the poor with only three deaths.

NOTES ON BOOKS.

IN the second edition of *The Science and Practice of Surgery*,[8] by Mr. W. H. C. ROMANIS and Mr. PHILIP H. MITCHINER, which follows swiftly upon the first edition, reviewed in our columns of November 5th, 1927 (p. 831), the whole work has been revised, notably the chapter concerning injuries of the extremities, and a number of new subjects, among them the injection treatment of varicose veins, periarterial sympathectomy, perimetry, and the radium treatment of malignant disease, have been dealt with. A few new figures have been introduced, and many of the *x*-ray photographs have been replaced by others clearer in outline. A useful innovation has been the inclusion at the end of each volume of an index to the whole work. This second edition, with its new features and improvements, should be assured of an even greater success than the first.

In the preface to the ninth edition of his vade-mecum of special surgery and orthopaedics[9] Dr. ZIEGNER states that almost every chapter has been added to and remodelled, and that here and there he has brought to mind much out of general and border surgery. The book is arranged on a regional basis, each part of the human organism, with its injuries, its diseases, and surgery appropriate to them, being taken into consideration in turn and very briefly discussed. As there are no illustrations no attempt is made to teach the reader diagnosis or methods of treatment, for which he must go to the far more valuable method of clinical experience and larger manuals and textbooks. The practitioner, however, who finds himself confronted with a problem in diagnosis and surgical treatment will find in this book something to help him, if not complete instruction and guidance. The English-speaking reader must not be misled by the title of *Speziellen Chirurgie* into thinking that this book deals with what we call specialties in this country. It may be useful as a kind of index to surgical treatment, full information on which must be sought elsewhere.

Sulphur therapy[10] is a small volume in which various authors deal with different aspects of the subject. Dr. T. GORDONOFF gives an account of the pharmacology of sulphur. He refers to some interesting researches of his own in which he showed that administration of sulphur caused a reduction in the blood sugar and an increase in the liver glycogen in animals. He suggests that there may be some connexion between this fact and Abel's conclusion that insulin was a labile sulphur compound. Professor R. MEYER-BISCH deals with sulphur therapy in general, and discusses the use of sulphur baths and sulphur administration in the treatment of chronic arthritis and hyperpiesis. Dr. PAUL UNNA, jun., discusses the use of sulphur in skin diseases.

Dr. EVEREST'S work on *The Higher Coal-tar Hydrocarbons*[11] is a useful addition to the literature of the subject. Substances wholly composed of carbon and hydrogen occupy a field of chemistry all to themselves. Those which are found in coal tar, or may be produced from it, have the peculiar interest that they are the head members of important groups of fine chemicals. These hydrocarbons have received, on the whole, more scanty attention than was their due; research has been less prolific among them than perhaps in any group of equal importance. Everest has collected the scattered literature and presented the facts in a readily accessible form. The treatise deals not only with the characters and properties of the hydrocarbons themselves, but also with the important products they yield. The chief features of these are described, and also the reactions by which related products are obtained from them. References to original publications are incorporated, within brackets, in the body of the text; these helpfully simplify the work of the inquirer. The book will prove valuable as well to those engaged in industrial research as to the academic worker.

No comprehensive book on human microscopical anatomy has appeared since the last edition of Koelliker's treatise, and as great and numerous advances in knowledge have been made since that time, Professor v. MÖLLENDORFF has undertaken the task of editing a work which shall embody our present knowledge in every detail. It is proposed to complete the work in eight volumes, the first two dealing with the tissues and the remainder with the microscopical anatomy of the organs. The first part of volume five[12] deals with the anatomy of the mouth, the salivary glands and pancreas, the tonsils, pharynx, oesophagus, and peritoneum. An examination of this volume, which is written by Professors Hellman, Schumacher, Seifert, and Zimmermann, shows that the work is not merely descriptive, but that the biological aspect has been kept in view, the developmental and physiological features of the subject being duly considered, while the facts of comparative anatomy and pathology are made use of wherever they serve to throw light on details of the normal human anatomy. The most striking feature of the volume is, perhaps, the great increase in the facts relating to cytology.

The production of books of the type of *Aids to Biochemistry*[13] is probably due to the array of examinations which have to be passed by the medical student; and the examination system is certainly the chief justification for their existence. The subject-matter of biochemistry does not lend itself to the tabulation, cross-heading, and compression necessarily adopted in the "Aids" series; furthermore, its relationship to other branches of physiology and medicine needs due consideration. For a student who has completed a course of biochemistry, and who wishes merely to refresh his memory on certain technical points of a more or less practical nature, the volume before us has many advantages. It is clear, concise, and contains a

[7] *Clinical Observations on Infant Feeding and Nutrition.* By Howard B. Gladstone, M.D.Ed. London: W. Heinemann (Medical Books) Ltd. 1928. (Demy 8vo, pp. xii + 118; 11 charts, 1 plate. 7s. 6d. net.)

[8] *The Science and Practice of Surgery.* By W. H. C. Romanis, M.B., B.Ch.Cantab., etc., and Philip H. Mitchiner, M.D., M.S.Lond., etc. Vols. i and ii. Second edition. London: J. and A. Churchill. 1928. (Roy. 8vo, vol. i, pp. x + 758, 330 figures, 10 plates; vol. ii, pp. x + 937, 298 figures, 1 plate. 14s. each volume.)

[9] *Vademekum der Speziellen Chirurgie und Orthopädie.* Von San.-Rat Dr. Hermann Ziegner. Neunte, neubearbeitete Auflage. Leipzig: F. C. W. Vogel. 1928. (Med. 8vo, pp. vii + 326. M.13.)

[10] *Therapie in Einzeldarstellung.* Herausgegeben von Professor Dr. R. von den Velden und Dr. med. et phil. P. Wolff. Schwefeltherapie. Von Priv.-Doz. Dr. med. T. Gordonoff, Professor Dr. R. Meyer-Bisch, Dr. Paul Unna, jun. Leipzig: G. Thieme. 1928. (5½ × 8½, pp. 96; 2 figures. M.4.50.)

[11] *The Higher Coal-tar Hydrocarbons.* By Arthur Ernest Everest, D.Sc., Ph.D., F.I.C. London: Longmans, Green and Co., Ltd. (Demy 8vo, pp. xiii + 334. 18s. net.)

[12] *Handbuch der Mikroskopischen Anatomie des Menschen.* Herausgegeben von Wilhelm v. Möllendorff. Fünfter Band: *Verdauungsapparat.* Erster Teil. Berlin: J. Springer. (Sup. roy. 8vo, pp. vii + 374; 276 figures. R.M.72.)

[13] *Aids to Biochemistry.* By E. Ashley Cooper, D.Sc.Lond., F.I.C., and S. D. Nicholas, B.A.Oxon., A.I.C. London: Baillière, Tindall and Cox. (Fcap. 8vo, pp viii + 188; 12 figures. 4s. 6d. net.)

remarkably large amount of information in an accessible form. It would, however, be disastrous if the low price and compactness of such publications should tempt the student to regard them as in any way fit substitutes for lecture notes or textbooks.

A book on *Volumetric Glassware*[14] has been prepared by VERNEY STOTT of the National Physical Laboratory. This describes methods of standardization and discusses the errors incidental to volumetric operations. It is a work of particular value to manufacturers of glass apparatus, not only for the sake of the information it gives, but for its authoritative origin.

The A B C of Vitamins,[15] by Mr. JOHN PRYDE, M.Sc., contains an up-to-date and entertaining account of our knowledge of vitamins, and of the methods by which this knowledge has been gained. As may be expected of a book by a biochemist of Mr. Pryde's standing, the information is, on the whole, accurate, though the validity of one or two statements may be questioned. For example, has the pleasant hypothesis that the cod obtains its vitamin D from the plankton ever been verified? Experimental work carried out before the establishment of the distinction between vitamins A and D cannot be said to afford satisfactory evidence. The statement on page 34 that vitamin D usually occurs along with vitamin A is ambiguous. It is true that "D" is usually accompanied by "A," but "A" may appear, as in green leaves, without the accompaniment of "D."

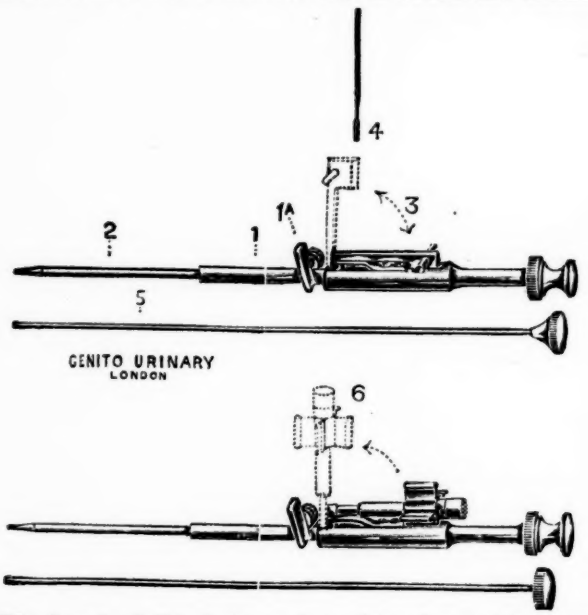
The eleventh edition of *From Cloud to Sunshine*[16] follows close upon the heels of its predecessor. It is a succinct and prettily illustrated guide to the beauties of Algiers and Algeria, and there is a chapter on the medical aspects and applications of its climate, which, even in mid-winter, is mild and sunshiny. Although as much rain falls, possibly, as in Paris or London, it comes down so heavily that the number of rainy days is comparatively small; moreover, two-thirds of it falls at night—a delightful arrangement which one would like to see introduced over here.

[14] *Volumetric Glassware*. By Verney Stott, B.A., F.Inst.P. London: H. F. and G. Witherby. 1928. (Demy 8vo, pp. 232; 40 figures. 20s. net.)
[15] *The A B C of Vitamins*. By John Pryde, M.Sc. London: J. Hamilton, Ltd. 1928. (Fcap. 8vo, pp. vi + 128; 3 figures. 2s. 6d. net.)
[16] *From Cloud to Sunshine*. By A. S. Gubb, M.D. London: Baillière, Tindall and Cox. (3s. 6d.)

PREPARATIONS AND APPLIANCES.

RADON SEED INTRODUCER.

MR. DUNCAN C. L. FITZWILLIAMS, M.Ch., F.R.C.S., writes: The radon seed introducer here illustrated was shown at the International Cancer Conference held in London last summer.



The barrel of this instrument consists of two tubes. The outer tube, marked 1, slides up and down and can be fixed by the thumbscrew 1A. This allows the operator to set the instrument at the exact depth at which it is desired to place the first seed, and all subsequent seeds can then be placed at an equal depth; moreover, second and third time seeds can be placed at different levels. The inner tube, marked 2, is the cannula; through this cannula the trocar is fixed to transfix the tissues. At the butt end of the instrument is a breech, shown closed, into which a magazine in dotted outline, marked 3, fits.

In using the instrument the breech is opened and the magazine (3) is loaded with a seed (4). The depth at which the seed is placed is determined by sliding the outer tube (1) and fixing it by the screw (1A). The instrument is plunged into the tissue till the shoulder of the outer tube stops it. The trocar is withdrawn, the magazine snapped into the breech, and the introducer (5) pushes the seed into place; the introducer is removed, and the magazine is raised and loaded again. The instrument can be inserted again by replacing the trocar, or it can be partly withdrawn and moved in another direction.

For multiple seeds a magazine (6) to hold four can be fitted; this revolves like the magazine of a revolver, so that four seeds can be inserted in different places, all at the same distances from the point of insertion.

It is of value to dip the seeds into antiseptic vaseline before loading the magazine.

The instrument is placed on the market by the Genito-Urinary Manufacturing Company, 28A, Devonshire Street, W.1.

ADVERTISEMENTS OF ABORTIFACIENTS.

A CIRCULAR in the following terms was issued by the Advertising Association (Inc.) to every newspaper in this country, and it has been suggested to the British Medical Association that its publication in these columns would be welcomed by the medical profession.

The Advertising Association has given careful and serious consideration to the advertisement and sale of alleged remedies for complaints peculiar to women which have appeared in certain publications. It cannot be too widely known, or too clearly emphasized, that these advertisements are, in a double sense, a source of grave danger and abuse. In the great majority of cases "irregularity" in a woman is a symptom of pregnancy; in the other cases it is probably a symptom at least of a condition requiring skilled medical treatment, and sometimes of serious disease.

It is desired to make it perfectly clear that the Advertising Association is not concerning itself with the sale or use of contraceptives, nor, indeed, with any question of morals involved in such sale or use. But the procuring of abortion is a serious crime, punishable by a long term of imprisonment for all parties concerned.

The association has consulted the Director of Public Prosecutions in regard to this matter, and he has expressed the firm opinion that these advertisements are a serious source of danger to those whom they reach, and states that they are the object of the close attention of his department. A case was recently heard at the Central Criminal Court before the Recorder of London where the parties charged sold remedies for "irregularities" through the medium of advertisements inserted in certain newspapers. These persons were convicted and sentenced to imprisonment, the Recorder commenting in severe terms upon what he called "this pernicious traffic."

It cannot be too strongly urged that all advertised "remedies" for female ailments are capable of harmful results if taken in large quantities, and the advertising of them is open to such grave abuse that a strong case can be made for the refusal of such advertisements by all journals jealous of their reputation. Even where these advertisements contain, as is frequently the case, warnings that the "remedies" are not to be used by pregnant women, they are equally mischievous, as such warnings amount to inducements in many cases to acquire the "remedies" for abortion purposes.

The evidence given before the Parliamentary Select Committee on Patent Medicines went to show that, in the majority of cases, these advertised remedies are purchased definitely and deliberately where pregnancy is admitted or suspected, in the belief that they will bring about the termination of that condition. The drugs advertised may or may not be efficacious in bringing about the desired result, but there can be no doubt as to the purpose for which they are, in the majority of cases, purchased.

This association, therefore, after deliberate consideration and consultation with those competent to express authoritative medical and legal opinions, has decided, while recognizing that many papers already exclude such advertising, to appeal to the press of the whole country, to advertising agents, and to others concerned, to decline to accept any advertisements of drugs or treatment purporting to be remedies for disorders generally termed irregularities, female ailments, or women's complaints. Such action would undoubtedly win general approval from the great mass of newspaper readers, and would, in the opinion of the Advertising Association, constitute a public service of great value to the community.

British Medical Journal.

SATURDAY, FEBRUARY 23RD, 1929.

CHRONIC RHEUMATIC DISEASES.

THE subject of chronic rheumatism is engaging more and more interest at the present time. Sir George Newman, in his annual report, has again insisted on the importance of the group of rheumatic diseases as a cause of industrial disablement, and the representative character of the conference held under his presidency at Bath last May directed public attention to the urgency of the problem which has to be dealt with. One of the main conclusions which emerged from the meeting was that no single theory could account for the genesis of rheumatic disorders, nor could any one form of treatment bring about their cure. The day has passed when all symptoms can be put down to infection, to metabolic defects, or to any other single factor; indeed, so complex are felt to be the problems presented by diagnosis and treatment that in the United States of America, as well as in many European countries, committees on rheumatism have been set up, and many of these bodies are directly recognized and subsidized by Government departments. In Great Britain there is a marked increase in the amount of research work and scientific clinical investigation at the spas, where at present the material for investigation is found in greatest concentration. Under the aegis of the Red Cross Society, London is establishing a special clinic for rheumatism, and this forward movement may shortly be followed in other large centres. Friendly societies are striving to find the means to extend spa benefit to their insured patients, and the demand for beds in the special rheumatic hospitals is probably greater to-day than it has ever been.

The Ministry of Health has issued a special report on chronic rheumatism by Dr. Alison Glover, and there have been many contributions to the literature of its pathogenesis and treatment. In our present issue (p. 338) Dr. F. D. Howitt calls attention to the theory advocated by Pemberton and others that the various forms of chronic rheumatic diseases are allergic reactions in specially sensitive persons to a variety of infections, and refers to the importance in treatment of elimination, especially by the skin, and to the applications of heat to that end. Heat may also act, however, by inducing redistribution of circulation and relieving local capillary spasms in the muscles and the skin. Thus Schulhof, reviving Quincke's theory, suggests that rheumatic diseases are due to capillary stasis in frigisensitive subjects, a contention which, like others, probably represents one facet of the total presentation, but by no means the whole. It would seem that so far as these diseases are concerned we must adopt a three-dimensional point of view. We have to explain why apparently the same sort of conditions produce different effects in different patients; why the conditions held to be responsible for rheumatic diseases may obtain in many subjects without in fact producing any symptoms of such diseases; and why individuals suffering from apparently closely similar symptom-complexes do not respond in equal measure to the same form of treatment. To achieve such an exposition we must in the first place consider the effects of heredity and bodily constitution; we must go back to the diathesis of our fathers, but not stay there. Endocrine dysfunctions, metabolic disturbances, special sensitivities, and the like, are all of importance, but are not the whole story. We must also consider toxic conditions, but not limit our vision to bacterial toxins only. We must be prepared to consider all varieties of general and focal infections, but we must realize that when such infections cannot be found it may be that they are not there. Further, we must be prepared to find that even when infections are discovered and removed the trouble may persist, simply because these sources of toxaemia were not those causing the symptoms. The responsible toxaemia may be chemical in origin rather than bacterial, or it may be derived from endogenous sources, such as the products of the patient's own metabolism or muscular activity. To all such poisons, as Dr. Howitt points out, the patient may be allergic. Lastly, we have to consider the factor of faulty elimination by any or all of the usual excretory channels of the body. In more than one recent article in the *British Medical Journal* attention has been drawn to the importance of the skin in this respect. Disordered sweat secretion may almost be said to be the specific characteristic of the rheumatic subject, and spa treatment, which has stood the test of more than 2,000 years, acts chiefly by improving elimination through the skin. It must not be forgotten, moreover, that the faults of elimination may be local as well as general, and if a joint or muscle is left overloaded with waste products rheumatic trouble is likely to develop and persist. Obviously, the relative preponderance of all these factors will vary from case to case. Every rheumatic patient must be considered, not only as an isolated individual, but in relation to his environment—climatic, emotional, and social. Special factors must also be taken into account in each of the varieties which these diseases exhibit.

In opening a discussion last week at the Balneological Section of the Royal Society of Medicine on the subject of osteo-arthritis, Dr. R. G. Gordon of Bath emphasized the importance of strain and lack of proper nourishment in the joint involved. He maintained that in the causation of osteo-arthritis infection probably played only a secondary part, while the condition itself might be a terminal stage of all the other forms of rheumatic disease. Dr. J. A. Thomson of Harrogate referred to the peculiarities of the *x*-ray findings in early cases of osteo-arthritis, and no doubt the elucidation of the causes of these and other peculiarities in the radiographic appearances in different types of joint disorders will help to solve the problems which the rheumatic diseases present.

The statistics of the incidence of rheumatic diseases and of the disablement they produce indicate clearly enough that no scheme for the control of rheumatism can be regarded as satisfactory unless it is planned on a large scale and affords facilities for the early diagnosis and treatment of every case. There is need for widespread recognition of three facts: that there is no longer any prospect of the discovery of a panacea for rheumatic disorders; that in our knowledge of their etiology and pathology there is still much chaos that has to be reduced to order; and, above all, that the greatest hope of their ultimate eradication lies within the province of preventive medicine. We may perhaps look to a time in the far distant future when faulty diathesis will be eradicated or compensated; when sources of toxaemia will never be allowed to establish themselves; when elimination has become adequate, and the individual adjusted to his environment or the environment to the individual. In such a golden age the reproach of rheumatism will have passed away, and with it a large part of palliative medicine.

THE LOCAL GOVERNMENT BILL.

THE Local Government Bill has now passed through all its stages in the House of Commons. The main principles on which it is based, whether regarded as a measure for the reform of local government administrative machinery or for the readjustment of rating, have suffered no alteration. There have been, however, a good many changes in important details, made with a view to correcting some manifest imperfections, or to conciliating bodies of critics who were, or thought themselves to be, adversely affected by the financial arrangements proposed. The general attitude of the British Medical Association to the bill, and the important points with which the profession is mainly concerned in connexion with its effect upon health administration, were set out in two recent leading articles in the *British Medical Journal*—one on November 10th (p. 854), and the other on December 1st last (p. 996).

Though the bill still remains a very important step towards that unification of health administration which the Association has made its aim for so long, the three main imperfections in this regard to which we drew attention are still unremoved. It was suggested that it should be mandatory upon, and not merely permissive for, the councils of counties and county boroughs to administer the functions transferred to them from the Poor Law authorities as far as possible by virtue of the appropriate Acts relating to public health services instead of through the Poor Law; and to co-opt on to the various committees concerned persons experienced in the work done by such committees, including representatives of the medical profession. It was further suggested that in the case of counties the council should be obliged, instead of being merely permitted, to delegate the exercise of transferred health functions to the councils of such county districts as had already established and efficiently conducted in their areas health services of a similar kind, thus avoiding an absurd overlapping or reduplication of work. These three matters—the distribution of functions, the delegation of functions, the co-optation on committees—still remain permissive only. Certain declarations relating thereto have, however, been made by, or on behalf of, the Minister of Health, and these are encouraging in so far as they indicate that he regards such distribution, delegation, and co-optation as the most advantageous methods of administration in most cases, and as those which, in the course of time, are likely to be generally adopted. Until this is brought about the unification and efficiency of health services, though advanced, will obviously be very imperfect, and we hope that the Minister, in the memorandum which he must necessarily address to local authorities on the passage of the Act, may be able to indicate that he will regard it as desirable that these features should be incorporated in schemes submitted for his approval by the councils of those authorities. In certain other respects of relatively minor importance the bill has been amended to meet points to which we drew attention. In particular the rights of transferred medical officers with regard to superannuation and otherwise have now been fully safeguarded.

There may still be some further amendment of the bill during its passage through the House of Lords, but it seems unlikely that its provisions will undergo any material modification. We are therefore close upon what we have called the " scheme stage " of the reform of local government and the Poor Law. The council of every county and county borough must, within six months after the commencement of the Act, submit a scheme of the administrative arrangements proposed to be made for discharging its transferred functions. On the submission of an administrative scheme a notice must be published that representations thereon may be made to the Minister within a period of four weeks. Schemes sanctioned by the Minister will become operative on April 1st, 1930. There is thus still time for the medical profession, collectively or locally, to advise or press the Ministry of Health, or the local authorities, or both, in order to secure its objects. It is obvious that in each locality such pressure can be exercised more effectually during the preparation of a scheme than after its completion, and it is scarcely too early, even now, for the profession in the area of each county or county borough to inquire what is being done, and to try to induce the local council to embody in its scheme the features indicated above, and such others as will lead to the most effective local health administration. Particular regard may well be paid to the way in which it is proposed to administer and manage hospitals and Poor Law institutions under the scheme. Later it may be necessary to press the Minister not to sanction schemes which appear to be unsatisfactory.

It is desirable to note that, beyond the submission of these administrative schemes, there are no fewer than three very important surveys which the bill imposes upon the councils of counties, as distinguished from those of county boroughs. One of these, which must be completed by April, 1932, at the latest, is to review the whole area of the county as regards its division into districts and parishes, and to report any changes in this respect which it thinks desirable. A second is to survey the hospital accommodation for the treatment of infectious disease provided within the county, and to submit a scheme for making such provision adequate for every part of the area. A third survey is with a view to formulating arrangements for securing a whole-time medical officer of health, not necessarily at once, for every district of the county. It is clear that, as with regard to administrative schemes, so with regard to these surveys, which may exercise great effect upon health services and administration, the medical profession should exercise its due influence, and should at once prepare itself to bring such influence to bear at the appropriate time.

HOSPITAL SERVICES IN NEW ZEALAND.

THE appendix to the annual report of the New Zealand Department of Health dealing with hospitals and charitable aid for the year ended March 31st, 1928, contains much of interest to those concerned with hospital organization and administration in this country. A comprehensive account of the New Zealand hospital system, based upon the appendix to the Health Department's report for the previous year, appeared in the *British Medical Journal* of July 14th last (p. 57). We may recall that the hospitals of New Zealand are maintained by local hospital boards financed mainly by public funds; in the year 1927–28 levies on local authorities amounted to 33.5 per cent. of the revenue, Government contributions to 41.6 per cent., recoveries from patients to 20.5 per cent., voluntary contributions to 1.7 per cent., and income from other sources to 2.7 per cent. The burden on public funds, it may be added, has risen from £505,852 (8s. 10d. per head of population) in 1916–17 to an estimated total of £1,544,258 (21s. 3d. per head) in 1928–29 for hospitals and charitable aid. Commenting on the rise in expenditure, the report observes that its reasonableness may only be judged in relation to whether the benefits received are proportionate

to the increased cost. "The people . . . have demanded and obtained a sufficient and, on the whole, efficient hospital service, and an increasing proportion of the population are using the hospitals. So long, therefore, as those receiving treatment pay as much as they can reasonably be expected to pay, and the relief is administered in an economical manner, the increased cost to public funds is not a sign of waste or extravagance." The situation is contrasted with that prevailing in countries where the voluntary system exists, and it is suggested that a permanent state of affairs in which sufferers should be unable to obtain admission to hospitals owing to the financial difficulties of such institutions "seems somewhat incompatible with the advanced civilization of the twentieth century." In New Zealand, if a hospital is unable to accommodate its patients it may be instructed to increase its size, the cost being shared equally by the Government and the ratepayers. The system as it exists provides 5.5 beds per 1,000 of population; in England and Wales the voluntary hospitals provide less than 1.5 beds per 1,000 of population, and the Poor Law authorities provide under 1 bed per 1,000 of the population in institutions maintained exclusively for the sick (that is, separate infirmaries and sick asylums). It would be unwise to attach too much importance to these figures, for due regard must be given to the fact that sick persons are also received in "general mixed workhouses" and other institutions, while the New Zealand figure apparently relates to all forms of hospital accommodation; but the contrast is nevertheless striking. Account must, moreover, be taken of the fact that the provision of hospital facilities in scattered districts, as in such a country as New Zealand, implies the existence of a much higher proportionate surplus (or reserve) of accommodation than is necessary in the larger institutions found in closely populated areas. Although the system prevailing in the Dominion appears to provide a satisfactory service in many respects, it is by no means without its problems, and, from the "defensive" tone of the report, seems to have been faced with a good deal of criticism. It should be noted that the medical staff remain on an honorary basis, and that while the policy of the New Zealand members of the British Medical Association favours the continuance of such free service in public wards, provided that accommodation is made available for the private treatment of their own patients, the authorities generally are disposed to consider that the medical staff should be stipendiary. There are also divisions of opinion—acute in some cases—on many aspects of the methods of finance and control, and on the attitude of the friendly societies towards the hospitals. The question of giving special consideration to patients able and willing to make payments in excess of those now customary (that is, from 9s. to 12s. per day) is also attracting attention, and the recently issued report of the Pay Beds Committee of the King Edward's Hospital Fund for London is discussed at length. Apparently the wards of the public hospitals in New Zealand are being used increasingly by those well able to pay at least moderate fees for the services rendered, and it is urged that the time is coming when the provision of pay wards should be considered. The main obstacle to discussion of the question on its merits appears to be what the report describes as "the class-distinction bogy," arising from a belief that any division of patients on the basis of ability to pay must involve discriminating treatment. In answering this objection an ingenious comparison with the conditions of railway travel is drawn: "Class distinction is observed in that one can travel first or second class; but both classes arrive at their destination in the same degree of safety at precisely the same time, and both classes derive exactly the same benefit from the highly skilled engineers and operators, enabling them to fulfil their journey in equal safety."

A DESCENDANT OF JOHN HUNTER.

On February 11th there died in the Sisterhood Home, St. Hilda's, Shirland Road, Paddington, where she chose to spend the evening of a life spent in well-doing, Miss Helen Hunter-Baillie, the senior representative of the Hunter family and a woman of exceptional ability. She was 85 years of age, and could read without glasses and retained her freshness of mind to the end. On the death of her sole surviving brother in 1895 she became "laird" of Long Calderwood—the birthplace of William and John Hunter, and also of Dorothea Hunter, who became the mother of Dr. Matthew Baillie, physician, and Joanna Baillie, poetess. The excellent state of preservation of the old farmhouse at Long Calderwood is owing to Miss Hunter-Baillie's care and vigilance, and to the keen and intelligent interest she took in all that pertains to the men who did so much to mould the progress of medicine in this country during the eighteenth century. Her father, Mr. William Hunter-Baillie, was the only surviving son of Dr. Matthew Baillie, and was born in 1797 within the school which Dr. William Hunter built in Great Windmill Street—a building which still serves as an annexe for the Lyric Theatre. He was educated at Westminster School and Balliol College, Oxford, was called to the Bar, and, although he never practised, did act for a time as marshal to his distinguished uncle Lord Denman. He inherited a fortune from his father, devoted himself to literature, society, and good works, and imparted much of his tastes and learning to his daughter, Miss Helen Hunter-Baillie. He lived for the greater part of his life at 96, Harley Street, and died in 1894 at the age of 97, and in his home Miss Hunter-Baillie met the leaders of literature and science of the nineteenth century. She wrote in her retreat a small typewritten volume of valuable reminiscences, a copy of which is preserved in the library of the Royal College of Surgeons of England. From it we learn that "she came out just as crinolines were coming in," and that she "thought the fashion charming." Her home atmosphere was strongly evangelical, but she and her sisters became ardent participators in the Anglo-Catholic movement. She gave herself to social service within the Church, and, if private circumstances had permitted, would have given herself to the order of sisterhood. As it was she became an associate of the order, and laboured in lay missions for forty-six years, first in the East End of London, then at Lisson Grove. From her father she inherited a strong sense of justice—justice, or equality of opportunity, for women—but the means she advocated and pursued were those of reasonableness and patience. Her interests were many and wide, and, fortunately for students of medical history, she had a keen and true sense of what constitutes a "record." At an early date she began to collect all old letters which had come down in the family from the Hunters, Baillies, Jenners, Barons, Denmans, Crofts; and these she arranged and catalogued and bound in seven volumes, and presented this valuable collection of documents to the library of the Royal College of Surgeons. To Miss Hunter-Baillie and to her brother, Captain William Hunter-Baillie, the Royal Colleges are indebted for many valuable portraits and busts of the Hunters, Baillies, and also of Jenner. At the Hunterian Oration, given biennially in the theatre of the Royal College of Surgeons, she was always a welcome guest, and had assigned to her a place of honour, which she well became. Students of the lineaments of John Hunter saw in her face, head, body, deportment, and inquiring mind much which reminded them of those of her grand-uncle. She was keenly interested in the Hunterian Collections preserved in the museum and library of the College. Miss Hunter-Baillie is now represented by the children of her two younger sisters—Henrietta, who married the Rev. J. Maconechy of All

Saints', Norfolk Square, and Agnes, who married the Rev. R. B. Oliver of Whitwell, Isle of Wight. In the Oliver family she had two nephews—the Rev. B. L. Baillie Oliver and the late Matthew William Baillie Oliver, F.R.C.S., whose early death three years ago was a great blow to her. These two nephews have left no descendants. A daughter of Mrs. Maconechy became the wife of Dr. T. Battersby Jobson; of that marriage there are four children. Thus, of the ten children born to John Hunter and his wife Agnes Paul, in the farmhouse of Long Calderwood two centuries ago, there are now only eleven lineal living descendants, representing the fifth and sixth generations. Although these are all that are descended from the Calderwood branch of Hunters, there is another line of Hunters which traces its origin to a senior brother of the John Hunter who became laird of Long Calderwood. The representative of this senior branch is Colonel C. S. Hunter, D.S.O.

NO. 3 CANADIAN GENERAL HOSPITAL.

ON the occasion of some Armistice Day celebrations, when flamboyant banners, and inscriptions in keeping, were in strong evidence, a Canadian contingent paraded under a tiny standard bearing in small letters the modest legend, "We were there too." That the Canadians "were there too" the British people are not likely to forget, and not the least of the reasons for their gratitude is the prompt provision of the famous medical unit whose history has now been told by R. C. Fetherstonhaugh.[1] Shortly after the outbreak of war the dean of the Faculty of Medicine of McGill University, Lieut.-Colonel H. S. Birkett, conceived the happy idea that McGill University should offer to the British Army a completely equipped hospital of 520 beds, the officers chosen from the staff of the faculty, other ranks to consist mainly of students, and the sisters selected from the large Montreal hospitals. The scheme was received enthusiastically, and as the head of each department of the proposed hospital Colonel Birkett secured a man outstanding in the professional life of Montreal and Canada. Needless to say, the university's patriotic offer was gratefully accepted, and to McGill belongs the proud distinction of being the first university in the Empire to furnish a medical unit for service overseas. While the hospital was in process of organization Canadian headquarters telephoned asking if the university could double the capacity of its unit, in view of the decision that all general hospitals were to contain 1,040 beds. Without leaving the telephone Colonel Birkett replied that McGill's offer of a general hospital still held good. The history of the hospital—which operated first in Dannes-Camiers and then in Boulogne—is based on official war diaries and similar records, and this accounts for a certain abruptness of style unavoidable in a compilation made up from such sources. The hospital work and events of the daily round are recounted in great detail, with interesting professional notes, and here and there abstracts of reports on special subjects rendered by the staff. If any reader feels that some of the details of ordinary happenings have little general interest, let him think of the future and reflect how highly we to-day should value a similar account of the daily routine in a hospital of, say, the Seven Years' war. The subject-matter of the book does not lend itself to condensation, being itself based on summaries of events, but the fact that from first to last the admissions numbered 143,762, and 11,395 surgical operations were performed by the staff, gives an idea of the magnitude of the work accomplished. One of the staff, Lieut.-Colonel John McCrae, whose untimely death is still deplored, won fame wider and more lasting, perhaps, than any other in the war, except for a few leaders of the first rank. One morning, after the second battle of Ypres, he gave a colleague a torn piece of wrapping paper on which he had pencilled the moving and now famous lines beginning, "In Flanders fields the poppies blow"; and so, like Charles Wolfe, McCrae put on immortality through the medium of a single poem. The volume is well illustrated with photographs, and in appendixes are recorded the names of all who served in this honourable company.

[1] *No. 3 Canadian General Hospital (McGill), 1914–1919.* Edited and compiled by R. C. Fetherstonhaugh. With a foreword from Field-Marshal H.R.H. the Duke of Connaught, K.G. Montreal: The Gazette Printing Co. 1928. (Med. 8vo, pp. 274; illustrated. Cloth edition, 5 dollars; de luxe edition, 10 dollars.)

PRACTICE AND FATIGUE.

IN one of the Monograph Supplements of the *British Journal of Psychology*[1] Mr. J. C. Flügel describes in detail the results of an arithmetic test applied to forty-six elementary school children. The subjects were girls, aged 9½ to 13½, and every day for a period of ten weeks (except on Saturdays and a few extra holidays) they performed the test for a period of twenty minutes at the end of their ordinary morning's work. They used Kraepelin's adding sheets, according to which the subject works down series of columns of single-place numbers, adding each number to the number immediately preceding it. In order to encourage the children to do their best, they were given a small regular payment and a bonus on each day that they beat their previous best record. These bonuses were larger and larger in successive weeks, so the incentive was an increasing one. Each subject kept a graph of her own results from day to day, and thereby realized her progress. The most striking result obtained related to the effects of practice. The total score on the last day of the experiment was three and a quarter times as great as that on the first day, and the rate of improvement apparently showed no sign whatever of falling off. It was, in fact, nearly steady from the fourth day onwards right to the end. This result appears at first sight to differ from that observed by other investigators with various mental and manual tests, as they almost invariably found that the rate of improvement gradually diminished, and tended to cease after a time. Probably the discrepancy is due chiefly to the tremendous improvement shown by the children, which the author's method of plotting does nothing to allow for. On an average, the number of additions made by the whole group of children increased at the rate of about a thousand a day, but whereas the total number of additions came to 73,000 on the last (or forty-sixth) working day of the experiment, it was only 30,000 on the fourth day—that is, the *percentage* rate of improvement was nearly two and a half times greater during the fourth and immediately succeeding days than at the end of the experiment. In order to be able to investigate the onset of fatigue during the course of the twenty minutes' session, the children were required to mark their results at five-second intervals, synchronous with the ringing of a bell, and to make a special mark every minute when the experimenter called out "Now." The average rate of work showed a rapid fall during the first minute, followed by a small and steady fall during the remaining nineteen minutes. The total fall from beginning to end was 14 per cent. on the additions made in the first minute, but it varied from the extremes of 3 to 38 per cent. in different children. The variations shown by individual children were very considerable, as might be expected. The speed of the quickest girl was nearly three times greater than that of the slowest girl, and during the course of the experiment the quicker girls improved (absolutely) at a more rapid rate than the slower ones; but their percentage improvement was rather less. In addition to being subjected to the test described, the girls were examined in respect of general intelligence and in arithmetical ability by Professor

[1] *Practice, Fatigue, and Oscillation.* By J. C. Flügel, B.A. The *British Journal of Psychology*, Monograph Supplements, XIII. London: Cambridge University Press. 1928. (Sup. roy. 8vo, pp. 92; 30 figures. 8s. 6d. net.)

Cyril Burt. In these qualities they showed a fair correlation with their speed of performing the experimental test, coefficients of 0.29 to 0.53 being obtained. The author endeavoured to determine whether the individual girls showed any natural rhythmical oscillations in their speed of working, but this portion of the investigation was rather disappointing, as the very distinct rhythm shown was evidently related to the one-minute signals given by the experimenter, and they eclipsed natural rhythms.

THE STORY OF LAURA BRIDGMAN.

BLINDNESS is a tragedy; deafness is almost as bad. To be both blind and deaf is a horror unthinkable to most of us. Yet there have been some mortals so afflicted who have overcome their disabilities when taken in hand by sympathetic and persistent physicians. The cases of Helen Keller and Laura Bridgman are well known. They represent early attempts at the education of defectives, which is nowadays part of the regular work of those who have the oversight of the numerous schools for the physically defective in all civilized countries. The tale of *Laura Bridgman*,[1] as recently retold by Mrs. Richards, gives some idea of the illimitable patience of Dr. S. G. Howe, founder of the Massachusetts School for the Blind in 1832. It is stated in this book: "When Dr. Howe first undertook the charge of the blind, he bandaged his eyes, and went thus about his father's house for many days, that he might guess a little of what it meant to be blind." There was the true experimenter. With such a spirit who can wonder that he was able to achieve marvels? Charles Dickens, when in the United States, paid a visit to Laura Bridgman, and he recorded in his *American Notes* his observations. "The thought occurred to me as I sat down in another room, before a girl blind, deaf, and dumb, destitute of smell, and nearly so of taste; before a fair young creature with every human faculty, and hope, and power of goodness and affection, inclosed within her delicate frame, and but one outward sense—the sense of touch. There she was before me; built up, as it were, in a marble cell. . . ." "From the mournful ruin of such bereavement there had slowly risen up this gentle, tender, guileless, grateful-hearted being." Laura Bridgman was a normal child until the age of 2 years, when she suffered from scarlet fever of a virulent type. Some two years later Asa Tenney—a singular old man regarded by some an eccentric, by some almost a "natural," and by Dr. Howe as a "sort of philosopher with a crack in his skull"—took the child in hand, and taught her by contact with woods and fields and streams, until she was aged 8, when she came under the care of Dr. Howe. The story is one that will put heart into the teachers of the physically defective.

THE OXFORD PRESERVATION TRUST.

"THE beauty of Oxford is a national possession, though the preservation of it is mainly a local concern." These words are taken from the second report of the Oxford Preservation Trust, which has been formed "to preserve for the benefit of the public the amenities of the City of Oxford and its surroundings, and for that purpose to acquire land in the vicinity of Oxford." The report opens with the statement that the Trust has had an exciting, busy, and fruitful year, and it is clear from the study of it that much has been done, and has been well done. The beauties of Oxford fall into two groups. In the first group are the lovely views of the city from the surrounding heights. No city, not even Moscow, can excel them. "Match me such marvel, save in Eastern clime." These are especially the delight of those who live in Oxford and learn to love its surroundings—the scholar gipsies of many centuries. Many of the famous sites need protection from modern developments. A former trust acquired the Hincksey Heights; the present trust has expended its resources wisely and well by the purchase of a portion of Boar's Hill, one of the most beautiful of the viewpoints, and also by a purchase along the banks of the Cherwell near Marston Ferry. These sites are thus saved from the builder. But much still remains to be done. Wytham Woods and Headington Hill must be preserved, and large funds will be required for these and other purposes. In the second group are the buildings and streets of the city and university itself. A casual visitor, spending a few hours in Oxford, can see enough to be impressed by their beauty and to recognize certain incongruities. Two sites are at present exercising those managing the trust. The houses on the south side of Broad Street have to be rebuilt, and St. Aldgate's, between Christ Church and Folly Bridge, is in a period of transition. "The Broad" is the more prominent site, but St. Aldgate's has always been an eyesore to those entering Oxford from the south. Here the trust is on difficult ground; the purchase of streets being clearly impossible, it has to proceed by negotiation and advice. It is pleasant to note the spirit in which the trust has been met by the city authorities, the Oxford Town Planning Committee, the Oxford Chamber of Trade, and private owners of property. The view of Christ Church from Folly Bridge has now been opened up, but it is necessary to provide for permanent improvements. Certain serious blemishes remain in the city; thus, the road into Oxford from the east, the portion between the station and Carfax, needs to be transformed into a dignified and worthy entrance. Much has been done by tact, but it is clear that considerable funds are still required. It need not be feared that the trust is in the hands of cranks. Here and there the traditional spirit of Oxford may be recognized, as in the enthusiastic tone of the report, the accuracy of its grammar, the number of its commas, and the concluding statement of its objects, "to assist the development of rural community life," whatever this may mean. But over all is a spirit of sanity and good sense; the object of the trust is not to grudge new building, but to guide it. The Oxford Preservation Trust is indeed worthy of support; we should all agree with its aims and respond to its appeal: "Oxford does not want to live on doles from outside, but, while discharging its own part of the duty, feels that it may fairly ask all past and present members of the University, former citizens, and the multitude of those who enjoy the beauty and interest of the city, to help Oxford in preserving the unique and essential features of its charm."

INFLUENZA.

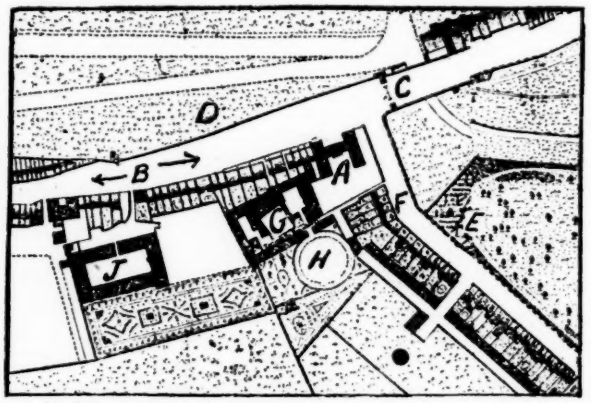
ALTHOUGH last week there was a considerable increase in the number of deaths attributed to influenza, the rate of increase slackened so much as to make it probable that the maximum will soon be reached. Unless the sudden onset of arctic conditions unfavourably affects the rate of mortality—which, since the present type of influenza has been least merciful to those advanced in life, is quite probable—we should expect the mortality of the next two weeks not greatly to surpass 1,200 in each, and that then there would be a decline. It appears that in the Liverpool area the influenza mortality is at or near its maximum. In Yorkshire only Leeds returned a large increase. In the south Portsmouth and Southampton seem to have passed their maxima. Only in London and the north-western area were there very large increases in the numbers of notifications of pneumonia. The course of the recrudescence will be followed with special interest, because this is the first time within the present post-1918 experience that so severe and widespread a period of intense cold has coincided with a considerable prevalence of influenza.

[1] *Laura Bridgman: The Story of an Opened Door.* By Laura E. Richards. New York and London: D. Appleton and Co. 1928. (Cr. 8vo, pp. xx + 155; illustrated. 6s. net.)

Nova et Vetera.

THE GROSVENOR PLACE SCHOOL.

THE private medical schools of London, which were flourishing at the beginning and in the first quarter of the nineteenth century, rendered great services to medical education. At a time when schools attached to the general hospitals were only in their infancy, these undertakings, which were conducted for the profit of their proprietors, gave the best education in medicine and surgery then obtainable in England. They deserved a better fate than befell them. Like the provincial medical schools, they were unable to face the competition of the rising hospital schools of the metropolis, which were favoured by the regulations of the College of Surgeons. The names of William Hunter, Joshua Brookes, Charles Bell, and Samuel Lane, all of whom conducted such undertakings, are household words in the history of British medicine in the late eighteenth and early nineteenth centuries. Among these Lane's name is closely associated with the rise of the medical school of St. George's and the foundation of that of St. Mary's Hospital. In a privately printed brochure[1] Mr. R. R. James, F.R.C.S., has lately given an account of the school conducted by Lane and others in Grosvenor Place, close to St. George's Hospital, together with a large amount of correspondence between Lane and his friends and some of the hospital staff, as well as other documents of importance. The school was established in 1830 by Lane in conjunction with Dr. J. A. Wilson, whose nickname of "Maxilla" represented not only his initials (J. A. W.) but his flow of language, taking over a number of students of the Windmill Street school from Mr. Herbert Mayo, who became lecturer at King's College. Lane's dwelling-house was at No. 1, Grosvenor Place, which is now the address of the Wellington Club, and he built a theatre and dissecting room at the back of it. A reference to Crutchley's map of London dated 1833 shows that although Belgrave Square was already built Grosvenor Crescent did not exist. To the south of the old hospital building, and covering the site of the present medical school and part of that of Grosvenor Crescent, was Tattersall's Yard and Ring, long known as "The Corner," a nickname since transferred to the hospital, and dear to all St. George's men. As Mr. James tells us, Tattersall, who was



A, St. George's Hospital. B, Knightsbridge. C, Hyde Park Turnpike. D, Hyde Park. E, Garden of Buckingham Palace. F, Grosvenor Place. G, Tattersall's Repository. H, The Ring at Tattersall's. J, Foot Guards' Barracks.

"stud groom to the Duke of Kingston, took a 99 years' lease of the site of the famous yard from the Grosvenor estate in 1766. This expiring in 1865, the site reverted to the Duke" (then Marquess) "of Westminster, who let it to St. George's Hospital on a peppercorn rent, so long as the site is used for charitable purposes, and on it were built the new block of wards of the hospital and the buildings of the medical school."

Obviously the site let to the hospital was smaller than that occupied by Tattersall, seeing that part of Grosvenor Crescent was cut out of it.

At the time of the foundation of Lane's school there was a narrow roadway leading into Tattersall's Yard, in which was the entrance to the school. In the accounts of the expenses of the school for 1842 is an item of thirty shillings for a board affixed to the north-east corner of Mr. Lane's house with the words: "To the School of Anatomy and Medicine ☞ 1st door on the left." Tattersall's ring and some of his buildings were also on the south side of this roadway.

The deplorable squabble which arose out of the contested election of an assistant surgeon to St. George's in 1834, at which Sir Benjamin Brodie's assistant, Mr. Cutler, was elected and Lane was rejected by the governors, was followed by years of bickering. The students of Lane's school got their clinical instruction in the wards of the hospital, which relied upon Lane and his colleagues for a supply of residents and dressers, but in 1836 another school was started in Kinnerton Street, Knightsbridge, which claimed to be specially that of St. George's Hospital. This was built on land owned by Sir Benjamin Brodie. Mr. Timothy Holmes, in his life of Brodie,[2] states that the money for the building and installation of the school was found by Brodie, who granted a lease at £275 a year. This school became a rival to Lane's, and at one time students from both met and worked together in the wards. Both schools seem to have suffered financially by this competition, and many attempts at amalgamation were made, but they all failed, until at last Lane was elected surgeon to the recently established St. Mary's Hospital, and his school became practically the anatomical school of that institution. After St. Mary's established a school of its own at Paddington (in 1854), the Grosvenor Place school still carried on under other teachers until 1863. Mr. James quotes from an article by the late Mr. Pickering Pick, which appeared in vol. 6 of the *St. George's Hospital Gazette*, as follows:

"After Lane's departure the institution fell into very low water, and at the time of which I write there were very few students, although there were some very good teachers connected with it; Sir Spencer Wells, then Mr. Wells, lecturing on surgery, Dr. Lankester on medicine, Mr. Wm. Adams and Dr. Halford on anatomy, and Dr. Richardson on physiology, all well-known men in their day."

There seems no doubt but that Lane's chances at St. George's were spoilt by personal antagonism aroused by his eloquent and argumentative friend Dr. J. A. Wilson, physician to the hospital. Mr. Holmes and Mr. James both think, as we do, that he was badly treated. The loss was mostly St. George's, and St. Mary's gained by his secession. Lane died in his ninetieth year in 1892. His son, James R. Lane, who taught in his school, also became in due course surgeon to St. Mary's, and died in 1891. The extracts from the minute book of Lane's school which Mr. James quotes are chiefly of interest as showing how little profit accrued to the proprietor and lecturers of a private school of medicine in the forties and fifties of the last century. In 1840 the school had nine lecturers besides Lane himself, for whom a certain number of fees were set apart. In December, 1841, £25 12s. was divided among the lecturers, and £42 in the March following. In 1845 the amount divided was £102 16s. 1d. A better year was 1850–51, when the fees received amounted to £712, and a surplus of £352 was declared for division. Possibly the influx of students of the new St. Mary's Hospital affected the receipts. In this, as in other balance sheets, a striking feature was the amount of arrears of fees owing. On this occasion it was £368 8s. The next year was better still, for a balance of £425 was reported for division. It was evidently the school's high-water mark, and at this meeting Lane stated his fears for the future.

This booklet is illustrated with excellent reproductions of engraved portraits of Lane and Wilson, and photographs of certificates and medals granted by the school. It is to be hoped that it may soon be made available to the medical public, for its contents are of great interest to all those who care for the history of medicine, as well as to St. George's men.

MUIRHEAD LITTLE.

[1] *The School of Anatomy and Medicine adjoining St. George's Hospital, 1830–1863.* By R. R. James, F.R.C.S. Privately printed for the author. George Pulman and Sons, Ltd., London, 1928.

[2] *Sir Benjamin Collins Brodie.* By Timothy Holmes, M.A., F.R.C.S. Masters of Medicine Series. London: T. Fisher Unwin. 1898.

CONVALESCENT PROVISION IN GREAT BRITAIN.

NEED FOR A GENERAL SURVEY.

CONVALESCENT care has not yet come to be regarded as an essential part of the work of the general hospitals in Great Britain. In ideal circumstances there would probably be provision for the treatment of each patient at every stage of his illness from the onset till his complete restoration to health; but it would be too much to suggest that the hospitals to-day, burdened with responsibilities which are increasing with the growth of population and with the extension of their services to classes formerly treated privately, should regard provision for convalescence as among their primary duties. To a considerable extent the anxieties of hospital authorities with regard to the after-care of patients have been relieved by the establishment, and indeed the general extension, of convalescent facilities by other agencies of various kinds, some independent, many working in close connexion with the hospitals themselves. Thus, while in general there is a definite shortage of convalescent provision, in certain areas it appears to be reasonably adequate. The following analysis may serve as a measure of the problems which must be faced before convalescent facilities in Great Britain can be regarded as sufficient for its needs.

An initial difficulty is presented by the fact that much of the available information lacks precision. The term "convalescent home," for example, covers a variety of institutions, some owned and managed by hospitals as an integral part of their organization, others controlled by friendly societies, trade bodies, or *ad hoc* associations which may receive patients, not necessarily recovering from illness, but merely needing a change of surroundings, simply because they are members or have been recommended by a subscriber. In view of this and other difficulties of classification, the statement printed below may be regarded as giving no more than a rough quantitative summary of existing convalescent accommodation in Great Britain and its relationship to the extent of hospital accommodation and population.

The following table indicates how far the larger hospitals—by which is meant those in London with 70 beds or more, and those elsewhere with 100 beds or more—have made provision for convalescent care. A number of special hospitals have been excluded.

Convalescent Provision in Large Hospitals.

	England and Wales.		Scotland.
	London.	Elsewhere.	
Hospitals having—			
(*a*) Convalescent homes attached ...	15	35	11
(*b*) Specific convalescent funds ...	5	18	1
Other hospitals	24	66	8
Total	44	119	20

In the category of convalescent homes attached to hospitals are included some actually owned and controlled by the hospitals, and some related to but not owned by them. A convalescent home, for example, may be the property of an independent body, yet give definite preference to patients from a particular hospital. Such preference may be secured by the constitution of the home, or it may be the result of an agreement or merely a tacit understanding between the respective governing bodies. Such loose relationships are probably far commoner than the figures suggest, for they are not necessarily brought out in the information available. Various hospital Saturday funds maintain convalescent institutions for the benefit of their subscribers, and provide a link between the hospital and the convalescent home which is usually as effective as exists in hospitals having a convalescent department of their own. Indeed, the relations between the hospitals and *ad hoc* convalescent institutions, whether controlled by friendly societies or trade bodies or other associations, are usually amicable, and the very looseness of the relation permits of great elasticity in administration and leaves the hospital authorities free to concentrate upon purely internal affairs.

The mere number of specific funds serves only inadequately to indicate the extent to which money is set aside for the needs of convalescents. Practically every London hospital, for example, has at least one "Samaritan Fund" from which the almoner may help to defray the cost of convalescent treatment. The fact that in a recent year one of the larger London hospitals, through this fund, provided more patients with convalescent treatment than another of similar size with a home of its own shows how futile is the attempt to arrive at a just estimate of the extent of convalescent provision merely by considering the number of hospitals with or without convalescent homes or convalescent beds. In point of fact, as the following table illustrates, by far the greater part of the available convalescent accommodation in Great Britain is in institutions not associated with hospitals.

Relationship between Convalescent Provision, Hospital Provision, and Population.

	England and Wales.	Scotland.
Total hospital beds	55,208	8,411
Population per bed	685	580
Total convalescent beds	12,506	1,861
Population per bed	3,029	2,623
Beds not attached to hospitals	10,089	1,270
Beds attached to hospitals	2,417	591
Percentage of total	19.3	31.7
Convalescent beds per 100 hospital beds ...	22.7	22.2

The above figures, though they are based upon incomplete information, present a fairly accurate picture of the situation to-day. It will be seen that in Scotland the proportion both of hospital beds and of convalescent beds to the population to be served is larger than in England and Wales, while the proportion of convalescent beds actually attached to hospitals is considerably greater. It is necessary to add that a survey based upon smaller geographical units would show that the distribution of convalescent facilities is by no means uniform. Approximately 75 per cent. of the convalescent accommodation in Scotland is situated in the Glasgow area, and of the total number of beds over one-half are contained in six large homes relatively inaccessible from Edinburgh, where the shortage of convalescent accommodation has caused some concern in recent years. Irregularities in the distribution of accommodation will probably be found also in the various areas of England and Wales.

A complete study of the problems of convalescent accommodation would involve the collection of information relating not only to the number of convalescent beds available in each area, but also to the manner in which the accommodation is utilized, notably the extent to which it is available for the reception of hospital patients requiring convalescent treatment. It would be valuable, therefore, to know the kind of work each institution undertakes—that is, to have a classification differentiating, for example, between institutions which provide little more than board and domestic attendance from those which have, and require, a trained nursing staff. With such information available for each locality it would be possible to establish a standard by which the optimum convalescent provision for any area might be estimated. It is already possible, largely as the result of the labours of such organizations as the Central Bureau for Hospital Information and King Edward's Hospital Fund, to arrive at a fairly accurate measure of the hospital accommodation required for an area with a given population; it is desirable that similar standards should be worked out with reference to facilities for convalescent treatment. Considerable interest would also attach to the views of those most intimately concerned

as to whether it is desirable for the general hospitals themselves to provide this treatment. As the figures we have given indicate, the existing accommodation has been provided in Great Britain mainly by other agencies, though probably not as the result of any considered policy. The system—if this word may be applied to such a medley of varying relationships—has been built up as nineteenth century towns were, by the inco-ordinated energies of isolated individuals and groups with very little sense of town-planning. Pressing the analogy a stage further, one may say that until a survey has been made no one can tell how far the efforts of the builders will suffice to meet the needs of the country as a whole.

In the *British Medical Journal* of December 3rd, 1927 (p. 1013), we published an address by Mr. Charles Roberts, F.R.C.S., surgeon to the Manchester Royal Infirmary, dealing with surgical convalescence, and putting forward a plea for greater attention to the after-care of patients. Mr. Roberts suggested that there would always be a large population of patients for whom it would be impossible to find accommodation in convalescent homes, and urged that there should be a convalescent department attached to each hospital. His study of the question led him to advocate the establishment of homes, with specially trained staffs, under the control of the hospitals. It would be interesting to examine the position of the hospitals throughout the country with a view to ascertaining how far they fulfil or fall short of his ideals at the present time. As a preliminary to such a study it would be essential to have a complete account of the existing system compiled from a series of regional surveys and supplemented by the views of medical and administrative authorities.

On a national scale a survey could be made by such a body as the Central Bureau for Hospital Information, though only with diffidence would anyone suggest such an addition to its already heavy labours. Much of the work of collecting and classifying data might, however, be profitably undertaken on a regional basis by local organizations, for in many cases hospitals and the convalescent homes which serve them are situated in sufficiently well-defined geographical areas.

Canada.

[FROM OUR CORRESPONDENT IN MONTREAL.]

State Medicine in the Dominion.

THERE is at present no State health insurance in Canada, but frequent references are made to the subject, more especially in the western provinces. There can be no better way of meeting any schemes which may be put forward by the Government than by having a clear idea of general health conditions throughout the country, especially as regards the cost of medical care and the distribution of practitioners in the country districts. These are pressing problems, and they are being closely investigated in the United States. A proposal has recently been made by Dr. J. G. Fitzgerald of the University of Toronto, in the course of the Gordon Bell Memorial Lecture delivered in Winnipeg, that a committee representative of the Canadian Medical Association, the various provincial associations, and the Federal Government should be formed to study such questions. The subject of sickness insurance should come under investigation, and Dr. Fitzgerald made a substantial contribution to the matter by describing the systems existing in the various European countries. While no attempt has yet been made to enact Dominion-wide legislation with regard to State medicine, it is only to be expected that, as preventive medicine assumes wider and wider activities, Government health departments will undertake more and more of the ordinary practitioner's work. This is especially well shown by the development of the provincial travelling clinics in Saskatchewan, which perform tonsillectomies and carry out diphtheria immunization. They were organized originally to deal only with outlying country districts where medical men were few and far between, or even entirely absent, but complaints have been made that occasionally the clinics have intruded on the province of the local practitioners. It seems probable, however, that before long their work will be handed over to the Council of the College of Physicians and Surgeons, on the understanding that the cost to the public will not be greater than at present.

Surgical Research at McGill University.

A gift of 85,000 dollars has been received from the Rockefeller Foundation by the Faculty of Medicine of McGill University for surgical research, and to further co-operation between the surgeons and various laboratory staffs of the University. These staffs include men whose names are well known in research in various fields: Professor Boris Babkin in physiology, Professor J. B. Collip in biochemistry, Dr. John Beattie in anatomy, and Dr. Wilder Penfield in neurological surgery. Well-equipped research laboratories are available for their work both in the University and in connexion with the Royal Victoria Hospital.

Red-water Disease in Cattle.

An interesting paper was published in the *Vancouver Medical Bulletin* of December last on red-water disease, an obscure and, unfortunately, highly destructive condition in cattle. It occurs on a strip of the Pacific coast, extending inland for about sixty miles, from north of the Fraser River into Northern Oregon. Its fatal nature may be gathered from the fact that in eight years it has practically wiped out a herd of sixty-three valuable Holstein Friesians, despite the greatest precautions. The paper offers observations regarding the early stages of the disease which apparently have not been made before. The most striking fact is that the disease is confined to certain well-defined areas. Animals sold from these areas to other localities did not develop "red water," even when they had shown the early symptoms. The disease, however, always proved fatal to animals kept in the affected area. Since the disease first appeared in 1921, what may be called the "incubation" period has become shorter; thus, while at first it was noted that it took two or three years' residence on the farm for an animal to develop bloody urine, the latest cases were found to develop eighteen months after the animal arrived. The first symptom to appear was a failure in milk, and two or three months after the second calving the cows became unthrifty, and showed a tendency to lose flesh. There was no alteration in temperature. A distinct but transitory jaundice, lasting ten or twelve days, with recurrences from time to time, was observed, and it was found that the animals lived from one to three years after first showing bloody urine. Most of the calves born on this farm died from haemorrhagic septicaemia. The few that lived were small for their breed, and eventually developed bloody urine at about the age of 3 years. The conclusion drawn from this study is that "red water" is a deficiency disease for which continued intensive cultivation is responsible. This view is supported by the fact that the animals lived for shorter and shorter periods as the farm grew in age, and that the disease increased in severity. It was also noticed in the winter of 1924–25, when the feed for the animals was purchased from outside, that no new cases developed and the early cases improved. When a return was made to the feed produced on the farm itself, however, the disease reappeared. The later calves would leave "good" home-grown hay to eat their bedding, which was of straw purchased from another district. Nothing unusual in the appearance of the feed could ever be noted; indeed, it appeared to be of unusually good quality. Mineral mixtures of various kinds were tried, but none had any effect on the disease, while frequent examinations of the blood and urine failed to show anything abnormal, and no bacteria or protozoa could ever be discovered. The problem, then, is still unsolved, but recommendations have been made for an exhaustive inquiry to determine the chemical nature of the soil of the farm and of the water, and to make feeding experiments on various groups of cows, using food from affected areas and comparing it with that from other places. A certain amount of experimental work already performed with guinea-pigs on this farm showed that those brought from other quarters and fed on the produce of the farm (clover and carrots), began to die off in about six months. The chief pathological changes found in these animals were in the liver, in which there occurred extensive vacuolation, and probably fatty changes.

Medico-legal Aspects of Huntington's Chorea.

An action was recently brought before the courts in Truro, Nova Scotia, which sought to appoint a guardian to a man suffering from Huntington's chorea. The medical evidence on both sides was unanimous that the man was quite competent to direct his own affairs. The case recalls the fact that there are a number of cases of this disease in a certain section of Nova Scotia. Apparently all the patients have been descendants of a brother and sister who came to Nova Scotia from the border of France and Switzerland to escape the persecutions which followed the revocation of the Edict of Nantes. In each of six generations of descendants of these two refugees there have been several cases of the disease, which has been transmitted only by those who actually suffered from it. A similar instance of a hereditary disease whose source has been traced back to France was recently reported by Dr. H. R. Clouston, at a meeting of the Montreal Medico-Chirurgical Society, this being hereditary ectodermal dystrophy, involving the hair, skin, nails, and nervous system; it was shown that, although rare according to the literature, the disease is comparatively common in and about Montreal (in the eastern townships). An analysis of six generations showed that 150 known cases had occurred, all traceable back to one family which emigrated from Normandy, where the condition is known to exist. It follows the Mendelian law of hybrids, and in the absence of intermarriage does not appear to have arisen except among French Canadians. Far from being fatal the condition is associated with longevity, but the more advanced cases present an extremely unattractive appearance. Dr. Clouston is pursuing his investigations in the matter with a view to determining the underlying cause, and he has no lack of material in the Province of Quebec.

Poliomyelitis in Manitoba.

The epidemic of poliomyelitis in Manitoba last year seems to have spent itself in October, and so far there has been no outbreak elsewhere. The total number of cases reported by October were 395, with a total of twenty-eight deaths. Convalescent serum was used extensively, with excellent results when given before the onset of paralytic symptoms. A special medical research committee, which is now preparing a report on the epidemic, was formed to deal with the situation, and under its direction convalescent serum was collected. The Winnipeg Medical Society arranged the preparation of articles for the public press on the diagnosis and treatment of the disease.

England and Wales.

Dinner of the Hunterian Society.

A BANQUET was given by the Hunterian Society at the May Fair Hotel on February 14th, to commemorate the 201st anniversary of the birth of John Hunter. After the royal toast and the toast to the memory of John Hunter had been honoured, Dean Inge proposed the toast of "The Hunterian Society," remarking that first among the able men he had known he would put members of the medical profession. The science of psychology made a connecting link between religion and medicine, and if the one could renounce its unfortunate proclivity for magic and the other its materialistic bias, physicians of the soul and of the body might co-operate to the general advantage. Dr. A. Westerman, president of the society, responding, said that the Hunterian Society, which was founded in 1819 for the promotion of the science of medicine, was each year increasing in influence and prosperity. In 1922 there were 152 Fellows; now there were 350. The society mourned the loss of Miss Hunter-Baillie, a direct descendant of John Hunter and an honorary Fellow of the society, who had recently passed away at the age of 85. Mr. A. R. Mortimer Woolf said that in proposing the toast of "The Lord Mayor" he had the choice of two methods, the personal and the impersonal; the first consisted in relating as many facts from the life of their guest as might assist the press in compiling an obituary notice; the latter in making an historical survey of his high office. After recalling the long association of the Hunterian Society with the Corporation of the City of London, the speaker said that if the link was now less than in the past it was due to the excellent work of their guest, the City's medical officer of health. Sir Kynaston Studd, replying to the toast, referred to the days when the élite of the medical profession lived in Finsbury Square and the adjacent district. He was glad that among the most successful meetings of the society were those held in the Mansion House. Mr. Ivor Back, proposing "The Health of the Guests," said that unlike Dick Whittington, whose successor was with them that evening, John Hunter turned his back on Bow Bells, and, migrating from an institution in Smithfield, which Mr. Back was informed still existed, proceeded to one at Hyde Park Corner of whose existence he had no doubt. To be frivolous at the expense of a Lord Mayor was a misdemeanour comparable with simony or barratry or champerty, for which the punishment might be incarceration in the underground dungeons which the Lord Mayor kept below his drawing room. Judging by the frequency with which the streets of London were blowing up, the period of incarceration might not be a very long one. They also had with them the Dean of St. Paul's, whom he had previously caught dining with the medical profession—a habit which seemed undeniable evidence of an esoterically hilarious temperament. Other guests whose health he would propose were Surgeon Vice-Admiral Gaskell, Dr. Walter Carr, Sir Squire Sprigge, and Dr. Willoughby, medical officer of health for the City, whose office was a sinecure, since no one had ever been known to die in the City precincts. Sir Squire Sprigge, Dr. Walter Carr, and Dr. Willoughby, in brief speeches, replied on behalf of the guests. Dr. Carr said, indeed, that he shuddered every time he heard a postprandial orator threaten to say "only a few words," by which he usually meant that he would not only waste time, but encroach upon eternity. In the course of the evening Mr. Tom Clare contributed a number of musical items, which were much appreciated, and the proceedings terminated with the singing of "Auld Lang Syne."

Moorfields.

The annual dinner of past and present students of the Royal London Ophthalmic (Moorfields) Hospital was held at the Langham Hotel on February 7th, with Mr. C. H. Usher, consulting ophthalmic surgeon to the Royal Infirmary, Aberdeen, in the chair; seventy students and guests were present. The various toasts were given by the chairman, Mr. J. H. Fisher, and Sir John Parsons, and were responded to by Sir John Rose Bradford, P.R.C.P., Mr. Theodore Luling, and Air Vice-Marshal David Munro. Among the other guests were Surgeon Vice-Admiral Arthur Gaskell and Professor G. Elliot Smith. During the evening the dean (Mr. Charles Goulden) gave a report on the progress of the institution in 1928. He said that the admission figure of new students had created a record by reaching 134, the previous highest number having been 121 in 1925. The number of students who attended the practice of the hospital was 182. During the twelve months ending October, 1928, 406 lectures had been given by the members of the staff, with the assistance of Mr. Hume, lecturer in anatomy, and Mr. Brinkworth, lecturer in physics. Two students had obtained the diploma F.R.C.S.Ed., while at the final examination for the Diploma in Ophthalmic Medicine and Surgery of the Conjoint Board, 48 of the 59 candidates, and 31 of the 35 successful candidates, had studied at Moorfields. Great success had attended the arrangement for courses by extra-mural lecturers, including Mr. Traquair, who dealt with perimetry, Professor Elliot Smith with the optic connexions of the brain, Professor Hartridge with the resolving power of the eye, and Dr. Kerr with the education of the partially sighted. During the coming term Mr. Traquair will again lecture on perimetry. Mr. Goulden added that applications were frequently made to the hospital by other institutions for house-surgeons and registrars, and by ophthalmic surgeons who required partners and successors. It had been mentioned last year that the school had outgrown its accommodation. Sir William Lister had provided a small additional lecture room, but further space was still needed. A large lecture

room to seat fifty students was required. The library now held only a part of the books, and a reading room for students, to form, perhaps, part of a new library, was needed; and there was a demand for new pathological and bacteriological laboratories. It was hoped that in the building scheme upon which the hospital was shortly embarking room would be found for these urgent requirements of the school.

Eugenics Society.

The twenty-first anniversary of the foundation of the Eugenics Society was celebrated by a dinner on Saturday, February 16th, at the Hotel Rembrandt, London, S.W., with the new president, Sir Bernard Mallet, in the chair. After dinner the Galton Lecture was given by Major Leonard Darwin, only surviving son of Charles Darwin. Major Darwin's address was in substance a review of the work of the Eugenics Society in the past seventeen years during which he had presided over it. A great change had taken place in public opinion. Twenty years ago there were the strangest misapprehensions about the meaning and importance of eugenics. Since then many books had appeared on the subject, some very wise, some very foolish. Progress had been due to the energy of many members of the society and to the generosity of a few. As to the reforms advocated, these had not changed very materially, being based on the principle that like tended to produce like—qualities good and bad in parents being apt to reappear in their offspring. In conclusion, the lecturer discussed some questions of practical policy, and urged the need for a large point of view which embraced the whole of humanity. It was not practicable to aim solely at breeding a eugenic caste on the one hand, and the elimination of mental defectives on the other. The vote of thanks to Major Darwin was proposed by the Dean of St. Paul's, who said that every successful movement had to go through three stages. First of all it was called ridiculous, then it was said to be contrary to religion, and lastly, people said that there was nothing new in it at all. The vote was seconded by Mrs. Neville Rolfe, for many years honorary secretary of the society, and was carried with acclamation. "The Health of the Visitors" was proposed by Professor MacBride, and replied to by Sir Richard Gregory (editor of *Nature*) and Dr. Tate Regan.

Cumberland Infirmary Extension.

The end of its first century of existence finds Cumberland Infirmary well advanced on an ambitious programme of extension, rendered necessary by the heavy increase in the demands made upon it during recent years. A new out-patient department, which has been erected at a cost of upwards of £33,000, was opened on February 7th by the president of the institution, Mr. W. T. Carr. Two wards, situated above the new department, are nearing completion, and it is expected that they will be ready for use by June. The nurses' home is being enlarged, and several of the rooms are already in occupation. A new lift was installed some time back, and renovation of the old buildings is proceeding. We announced on November 1st, 1928 (p. 1007), that plans had been prepared for a new pathological department; it is hoped that arrangements will be made at an early date for the work of its erection to be undertaken. In the programme for the future is the addition of another operating theatre and the provision of isolation accommodation. The new out-patient department includes a dispensary, a reception room for casualties, where minor operations may be performed, and a large waiting hall which communicates with subdepartments for radiology, electrotherapeutics, massage, heliotherapy, diathermy, and dentistry, and a room for examination of the special senses. In addition to these there is a medical department, comprising a consulting room, three adjoining examination rooms, and a clinical laboratory; and, similarly, a surgical department with a consulting room, examination rooms, and an operating theatre. The administration department secures convenient accommodation for the medical and nursing staff. The heating is by low-pressure steam radiators. This new out-patient department is connected with the older part of the Infirmary by a corridor, which will also give access to the two new wards in the course of erection. Mr. Carr, declaring the building open, expressed his belief that it would compare favourably in respect of its equipment and general arrangements with any similar one elsewhere. For the present scheme of extension it is anticipated that a total outlay of at least £70,000 will be required. Despite the rising annual expenditure, a credit balance of over £2,000 was reported as a result of the previous year's working, and it is confidently hoped that there will be an increase in the financial support.

Central Midwives Board.

At a meeting of the Central Midwives Board for England and Wales on February 7th, with Mr. L. H. West in the chair, the reappointment of the following members was announced:

Miss E. E. Greaves, Miss A. Davies, Dr. F. N. Kay Menzies, and Mr. A. B. Maclachlan—representing the Minister of Health.

Mr. L. H. West, representing the Association of County Councils.

Miss E. Richmond, representing the Queen's Institute for District Nursing.

Dr. J. J. Jervis, representing the Association of Municipal Corporations.

Dr. R. A. Lyster, representing the Society of Medical Officers of Health.

The standing committee had under consideration the case of the Wolverhampton District Nurses' Home; as recorded in the *British Medical Journal* of January 19th (p. 127), the Board recently decided to discontinue approval of training at the home. Representations have since been received from the Royal Hospital, Wolverhampton, and the medical officer of health for that town regarding the position, and it has now been decided—in view of the statement that the work of the home is being transferred to the new maternity hospital and that it will be under the control of a committee in no way connected with the committee of the nurses' home—to postpone action pending further investigation. The Board, in connexion with a letter from the Midwives' Institute, adopted a resolution giving its support to the amendment to Section 10 of the Local Government Bill, 1928, set down on behalf of the Institute by Dr. Fremantle, M.P., and decided to send a copy of the resolution to the Minister of Health. Dr. C. F. Brentnall was appointed examiner at the Manchester and Liverpool Centre, and approval was given to Dr. A. G. Newell as a lecturer.

Scotland.

Royal Medical Society of Edinburgh.

THE annual dinner of the Royal Medical Society of Edinburgh was held in the Hall of the Royal College of Physicians on February 14th. Dr. I. G. W. Hill, president of the society, occupied the chair, and the guest of the evening was Dr. G. A. Sutherland, C.B.E. The toast of "The Imperial Forces" was proposed from the chair and acknowledged by Professor F. A. E. Crew, while Dr. A. S. Paterson, in proposing "The City of Edinburgh," referred to the sexcentenary celebrations which are to take place in the city this year, commemorating the charter granted to the city by Robert the Bruce in 1329. The chairman proposed "The Health of the Guest," and Dr. Sutherland, in the course of his reply, mentioned that when he went as a young Scot to Paddington Green Hospital, London, this had been known as the Scottish Hospital, the reason being that two-thirds of its staff were Scotsmen. The connexion with Scotland had since been maintained, for he found that as against 42 residents from all other parts of the world, 35 had been graduates of Edinburgh University. Proposing the toast of "The Royal Medical Society," he wished for it a future as prosperous as it had now enjoyed for nearly two centuries past. Dr. C. P. Beattie proposed the toast of "The Sister Professions," and the Very Rev. C. L. Warr, Dean of the Thistle, replied for the Church, and Lord Salvesen for the profession of law.

Gift to Glasgow University.

At a meeting of the Glasgow University Court on February 14th Principal Sir Donald MacAlister, who presided, reported that he had received from the Lord Rector, Mr. Stanley Baldwin, a cheque for £1,000, to be devoted to some object within the purview or control of the medical faculty of the University. The gift is a grant from a sum of money which Lord Beaverbrook had placed at the disposal of the Prime Minister in gratitude for the escape of Lord Beaverbrook and his associates in a recent motor accident. Attention was drawn at the same meeting to the large number of applications received for admission to first-year classes in medicine at the University of Glasgow. It was pointed out that normally there was accommodation for 180 students in the first year, and the suggestion was made that the limit of enrolment might be fixed at 200. A great number of applications had been received from overseas, including applications from seventy-nine Americans to commence the study of medicine at Glasgow University.

Physical Welfare of Glasgow Students.

At a meeting of the general council of the University of Glasgow an ordinance was considered which provided for an addition of 10s. 6d. annually to the matriculation fee, so that this sum should be specially earmarked for the physical welfare of students. Principal Sir Donald MacAlister, who presided, mentioned that the initiative in this project came from the students themselves more than two years ago. The three universities of Edinburgh, St. Andrews, and Glasgow had taken up separate ordinances on this matter, and believed that the students were right in holding that the matriculation fee should be increased in order that the common interest in physical welfare might be represented by a common levy. The University Court in Glasgow had already established a university students' fund, which was intended to foster all the activities of the students of this nature. That fund would still be available, and had practically meant that the University Court would pay £1 for every £1 of the students' contribution. The attempt that had been made some years ago to raise a fund for the general welfare of the students had been supported in many quarters and now approached £100,000. By this means they had acquired the athletic grounds, built a pavilion and spectators' stand, and were now engaged in the erection of a students' union. The annual finance had, however, to be provided for, and as these interests were in one aspect or another common to all students, the students themselves were anxious that all alike should share in helping towards their annual maintenance. In laying aside a certain sum for the physical welfare of students, the University Court had designed that the entrance fees should be lowered, and this had been done.

Glasgow Hospital Needs.

A meeting of the Court of Contributors of Glasgow Royal Infirmary was held in the Merchants' House, Glasgow, on February 11th. Lord Provost Sir David Mason presided, and remarked that the Royal Infirmary, during the 134 years of its existence, had occupied an indispensable place in the community of Glasgow. Its requirements were, however, increasing, and there was still need for more widespread generosity in supporting this institution, despite the fact that recently there had been a gratifying increase in the subscriptions and donations from employees. The claims of hospitals must not be forgotten during times of abnormal distress, because the work of the Infirmary was specially great during such times. Mr. James Macfarlane, chairman of the Board of Managers, said that the most important event of the previous year had been the completion of the reconstruction scheme inaugurated in 1897, which had absorbed £271,000 of the Infirmary's free funds. It must be remembered that they had lost the income on this £271,000, and had also incurred additional costs for maintenance, although they were now provided with one of the finest hospitals in the kingdom. The free capital was now entirely exhausted, and the work of the institution depended almost wholly on what was received from year to year. Other institutions connected with the Infirmary, such as a new ophthalmic institution and the convalescent hospital at Canniesburn, were also urgently required. For the annual revenue of the Infirmary an additional sum of £20,000 per annum in subscriptions was needed in order to give the directors confidence to go on as they were doing. This should be a trifling sum if divided over the population of Glasgow, and even if divided over the number of persons already subscribing annually to the Infirmary, it amounted to an extra gift of less than £1 per head per annum.

Central Midwives Board for Scotland.

At the examination of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, and Dundee, there were 106 candidates, of whom 87 passed. Of the successful candidates, 24 were trained at the Royal Maternity Hospital, Edinburgh; 35 at the Royal Maternity Hospital, Glasgow; 9 at the Elsie Inglis Memorial Hospital; 4 at the County Maternity Hospital, Bellshill; 3 at Barshaw Maternity Hospital; 3 at Motherwell Maternity Home; 2 at the Eastern District Hospital; 3 at the Govan Maternity Cottage Hospital; 1 at Dundee Royal Infirmary; 2 at the County and City of Perth Royal Infirmary; 1 at the Edinburgh Lying-in Institution, and the remainder at various recognized institutions.

Nursing Home for Selkirk.

At a meeting of the town council of Selkirk on February 11th, Provost Ballantyne announced that two residents in the district had presented sums of £2,000 and £1,000, with the object of purchasing Viewfield Nursing Home, in the neighbourhood of the town. The purchase price was about £3,500, so that this nursing home had virtually been presented to the town by the generosity of these two donors.

Ireland.

Child Welfare in the Irish Free State.

WITH the object of promoting certain amendments of the Children's Act, 1908, a deputation composed of members of various organizations recently visited the Ministry of Local Government, where it was received by the Secretary in the unavoidable absence of the Minister. The amendments suggested were as follows. (1) That effect should be given to the recommendation of the report of the Poor Law Commission—namely, that the law should be strengthened in the direction of prevention by the introduction of affiliation orders. (2) That homes with attached maternity and probationary departments should be established to accommodate the mother and child for as many months, up to a year, as might be considered necessary; that it should not be lawful for the owner of any private house or nursing home to take a maternity case for profit unless it has first been licensed by the local authority; the premises must be open for inspection and a register be kept of the names and addresses of the mothers of all children born in such home, and the names and addresses of all persons into whose care such children are given when leaving. (3) That any person acting as agent in putting a child under the age of 7 out to be nursed should be equally liable with the person who receives the infant. The person acting as agent must forward to the local authority a receipt stating the amount received for placing the infant, and the person who receives the child may be required to attend before a divisional magistrate or district justice to satisfy the justice whether any fee has been given, and that the transaction was for the benefit of the child. (4) That no child should be sent to any person for maintenance for reward unless and until the local authority for the district gives a certificate that the person who is to have charge of such an infant is a fit and proper person, and that the premises are suitable in every respect. (5) That any offender against the Children's Act may be prosecuted within, say, twelve months after the committal of such offence or continuing offence, notwithstanding the provisions of any Act or Acts to the contrary. There was agreement as to the necessity for additional safeguards, but the discussion revealed

certain difficulties which more stringent regulations or changes in the substance of the law would create. The deputation undertook to give the matter further consideration and to prepare a supplementary memorandum.

Immunization in the Treatment of Diphtheria.

Dr. E. F. Stephenson, chief medical officer of the Department of Local Government and Public Health, in a public statement in connexion with the prevention of diphtheria, has said, although it was thought inadvisable to make too strenuous efforts to persuade parents to have their children immunized, it was felt that, where the disease threatened to become epidemic, the parents should be informed that active immunization provided a safe, practicable, and effective method of prevention. It was recognized that in order to ensure success immunization schemes for the eradication of diphtheria should be conducted on systematic lines, under the supervision and guidance of a county medical officer of health, and consequently the appointment of these officers was especially urged where diphtheria had established a footing. The distribution of the disease, as brought to the notice of the department in the year ended March 31st, 1928, is shown in the following table of reported cases: Carlow 8, Cavan 27, Clare 32, Cork 201, Donegal 26, Dublin 49, Galway 82, Kerry 33, Kildare 16, Kilkenny 12, Queen's County 5, Leitrim 4, Limerick 13, Longford 3, Louth 38, Mayo 8, Meath 3, Monaghan 9, Offaly 14, Roscommon 14, Sligo 5, Tipperary 14, Waterford 15, Westmeath 7, Wexford 50, Wicklow 10. Out of a total of 698 reported cases, 505 occurred in rural districts and 193 in urban districts, of which 23 per cent. and 43 per cent. respectively were attributed to Cork County rural and urban districts. With the exceptions of Cork County (Kinsale and Passage West), Galway, County Louth (Dundalk), and the county boroughs, the disease, apart from occasional small outbreaks, has been of infrequent prevalence. In the isolated rural areas the sporadic occurrence of diphtheria can probably best be countered by the swabbing of contact cases and the isolation of carriers. Milk is a recognized vehicle of infection of diphtheria. In accordance with the recommendation of the Interdepartmental Committee, the provisions of the Public Health (Pneumonia, etc.) Regulations are being revised, and applied to diphtheria amongst dairy employees.

Correspondence.

THE BEHAVIOUR OF THE CIRCULATION UNDER THE SPHYGMOMANOMETER CUFF.

SIR,—Dr. Harrington Sainsbury has raised the question as to what exactly happens to the artery and the circulation under the sphygmomanometer cuff during compression (*British Medical Journal*, February 2nd, p. 191). It is some years since I pointed out that the effects can be studied under the microscope with the help of the Roy and Graham Brown apparatus. The experiments which I now describe should, I think, be included in any course of practical physiology, so that the medical student may know the principles underlying the measurement of blood pressure in man.

The Roy and Graham Brown apparatus is in principle a sphygmomanometer. It consists of a small cylindrical brass chamber floored with glass and enclosed above by a sheet of areolar tissue, which can conveniently be got from a rabbit. This is transparent, and so easily distensile that very little error arises from the pressure required to distend it. A diameter of 3 mm. suffices for the upper end of the chamber. Into the chamber there is sealed a side tube which connects by a T-piece with (1) a water manometer and (2) a tube for raising the pressure in the chamber. The chamber has attached to it an upright carrying a horizontal arm, which can be raised or lowered by a screw adjustment. To this arm is attached by sealing-wax a small piece of glass (cut from a microscope slide) broad enough just to cover the top of the chamber. There is also attached a sheet of cork on which a frog can be fastened so that part of the web of one foot is spread over the areolar tissue which covers the top of the chamber.

The frog is anaesthetized with urethane. The brain can first be crushed with forceps so that the animal is dead to the law. The urethane is a 25 per cent. solution; 0.3 c.cm. or more, according to size of frog, is injected under the skin of the back. The web is arranged so that its free edge lies over the middle of the top of the chamber. By means of the screw adjustment the glass plate is then lowered down so that it just comes in gentle contact with the web, a film of water being interposed. The apparatus is then put under a microscope, using a 1/2-inch objective, and the circulation observed. There must be no interference with the normal circulation, which appears fast, continuous, unpulsatile. On gently raising the pressure by blowing down the tube, one sees that the flow in many of the capillary loops at the edge of the web ceases, and the blood is expressed from these, while it continues to flow in capillaries where the resistance is less. It generally takes about 5 or 6 cm. of water to effect this. The same pressure usually suffices just to produce a pulsatile effect in the adjacent network of terminal arterioles, and those capillaries and venules through which the flow still continues. The true capillary pressure is then under 5 to 6 cm. of water, for this pressure suffices to stop the flow in many, and so bank up the pressure to that in the arteriole which is supplying them, some of the kinetic energy being changed into static. This same pressure, if momentarily applied, suffices to check momentarily and to reverse the flow in the terminal arterioles. If the pressure be now raised further the flow ceases in more and more capillaries and venules, and finally in all and in the arterioles. As the flow becomes restricted to fewer and fewer capillaries it becomes more and more pulsatile, till finally only a spurt of corpuscles gets through on each systole, and then with a little more pressure this stops, and the arterioles are flattened and emptied, the blood in them being expressed. During the expression and blanching of the web the flow in the arterioles is reversed. On letting down the pressure step by step one reaches the point when the systolic pulse just drives some corpuscles through the arterioles. This pressure, usually about 12 to 15 cm. of water, indicates the systolic pressure in the main arteriole which supplies the terminal arterioles, for banking up results from stopping the flow. The true mean pressure in the terminal arterioles approximates to that in the capillaries, and is given by the pressure which, when applied momentarily, checks the flow, and when maintained just produces a visible sign of pulsation. To shut up one of the main arterioles in the web it may require a pressure of some 20 cm. of water; as banking up occurs this is the systolic pressure in the artery which supplies it. To produce a pulse, or momentarily to check the flow, a pressure is usually required about half this amount. It is to be concluded, then, that about half the systolic pressure in such an artery is spent in maintaining the velocity of flow in the terminal network of vessels. The energy is so used up in overcoming frictional resistance in this network that in the capillaries the mean pressure is not more than 5 to 6 cm. of water.

A sphygmomanometer cuff to fit the frog's thigh can be made out of a piece of a toy balloon (sausage-shaped). This is closed at each end, and has a glass tube inserted and tied into the middle. An outer cover for the rubber bag is afforded by a piece of thin waterproof material, a hole being made in this for the passage of the glass tube. The tube is connected by means of a T-piece to a water manometer and a tube for raising the pressure. The cuff is snugly applied round the thigh, and two pieces of tape gently drawn round and tied over it so as to confine the expansion of the rubber bag effectively, but not so as to interfere with the circulation. Observation of the web under the microscope will show that the circulation remains normal. In place of feeling the pulse at the wrist, or listening to it in the brachial artery below the cuff, as in the case of man, the circulation in the web of the frog is observed under the microscope and pressure noted when the blood flow ceases. It will be seen that as the pressure is raised in the cuff the flow in the terminal network of arterioles, capillaries, and venules becomes pulsatile and slower until the flow ceases in more and more capillaries, and only comes through in pulses; finally it ceases to pulse through the main arteriole.

It takes about 30 to 40 cm. of water to stop the flow in the sciatic artery in the thigh; as banking up occurs this is the systolic pressure in the aorta which supplies the sciatic artery. Similarly in man, the systolic pressure measured by the arm cuff is not that in the brachial artery, but in the axillary artery which supplies it. About half the stopping pressure produces a pulsatile flow in the web, and this may, I think, be taken as near to the true mean pressure in the sciatic artery. In the case of man, if the cuff on the arm be connected with a recording tambour, and the pressure raised until pulsation becomes distinct, that pressure will closely approximate to the mean pressure. It is not possible to observe in the web the effect

of a momentary check applied to the sciatic artery, because after the flow in the sciatic artery has been stopped the arteries below continue to squeeze blood on through the terminal network. To measure the systolic pressure it is best to raise the pressure till the pulse stops, wait till the flow stops in the web, and then relax the pressure until the pulse just begins to drive some corpuscles through the arterioles in the web. To carry out these observations the large edible frogs which can be obtained from Hungary are the most suitable. In such a frog another cuff can be placed round the tarsus; then the pressure can be measured at the thigh, the tarsus, and the web, and the drop in pressure mapped out. Dr. Gaddum inserted a cannula for me in the sciatic artery of a big frog on one side, and this was connected with a mercury manometer. The systolic pressure so measured corresponded within 1 mm. of mercury with that measured by the cuff on the other thigh.

An experiment of interest is to keep a pressure of, say, 20 cm. of water in the cuff on the thigh, and observe the congestive effect on the web; the arterioles, capillaries, and veins all become wider, the flow is retarded and becomes pulsatile in place of being smooth and continuous. To shut up the terminal arterioles in the web will now require a pressure a little over 20 cm. of water, for the pressure has banked up to that owing to reduction of flow brought about by the compressive action of the cuff.

Be it noted that less than this pressure suffices to empty some of the loops at the edge of the web, for blood can be expelled into capillaries and venules which are not yet filled to distension. So, too, in man, when the pressure in the cuff on the arm is maintained, say, at 40 mm. of mercury, the pressure rises in the large veins below the cuff to this height, as blood comes from the arterioles through the wider paths, where resistance is least. But it is not the case that all the capillaries in the arm are filled to distension at this pressure. The mere feel of the skin will show that this is not so; moreover, blanching of a small area can be produced by a much less pressure. The blood can be pushed from one part of the terminal network into another which is not yet full to distension. It would take a long time for all the capillary network to open out and fill up, and before this happens the feeling of painful pressure becomes intolerable. Moreover, the frictional resistance is so increased by the 40 mm. of mercury pressure in the cuff that the flow only continues through the wider pathways of least resistance, and ceases in tortuous pathways of higher resistance. All this can be observed in the frog's web when a pressure is maintained in the cuff on the thigh.

Measurements made in the frog's web, tongue, liver, glomeruli of kidney, mesentery, edge of mouse's ear, muscular wall of abdomen of mouse, liver of mouse, bat's wing, and vascular area of 2 to 3-day-old chick embryo show that the capillary pressure is very low, equivalent to a very few millimetres of mercury, and does not suffice for the theories of filtration which for so long have been in vogue. The measurements of capillary pressure made in the skin of man (1) by insertion of a micro-pipette, (2) by finding the pressure which just stops bleeding from a small cut, confirm this statement. The capillary networks are surrounded with tissue cells and the whole is confined within a capsule in the case of a gland, in the case of a limb within aponeurosis and skin. The capillary pressure, small as it is, is then counterbalanced by the tissue fluid pressure. The interchange between tissue cells and blood in the capillaries is brought about, then, through the membrane of the capillary wall, not by filtration, but by the varying state of physico-chemical equilibrium of the tissue cells and the blood. The changes, such as oedema, ascribed to back pressure are not really due to back pressure, but to lessened flow and consequent want of oxygen and disordered metabolism, which leads to the tissue cells pulling fluid out of the capillaries to dilute poisonous products. So, too, in inflammation, the products of injury cause fluid to be pulled out by the tissue cells, just as mucus is secreted to dilute an injurious substance in the mouth. The circulation is designed to bring a flow of blood to the tissue cells with only the thin capillary wall interposed; these cells pull out while the blood pulls in materials until the two come into equilibrium. It is an error to suppose that the heart by its force drives blood, say, to the glomeruli of the kidney or to the ciliary body of the eye, and there filters out fluid. Observation shows that no adequate filtration pressure exists in the glomeruli. A more likely hypothesis is that the cells of the proximal convoluted tubules, by secreting crystalloids into the capsules, pull water out of the capillaries of the glomeruli. How living cells secrete into and absorb from the circumambient medium we do not know.—I am, etc.,

National Institute for Medical Research, Hampstead, N.W., Feb. 12th. LEONARD HILL.

SIR,—I am much disappointed by Sir James Barr's letter respecting my paper under the above heading. I am sure he would be the last to misrepresent the drift of an argument, yet when he says that I try "to establish by inference" what *he* "thought was long since proved by experiment—namely, that colloids are practically incompressible"—and ends his letter by "it will require *something more* [my italics] than Dr. Sainsbury's inference to convince me that the brachial artery remains full when submitted to a pressure sufficient to obliterate the pulse at the wrist"—when he does this, will not the *inference* drawn by the reader of his letter be that the sum and substance of my paper is concerned with a proving of that which is already well established? Certainly it will not encourage him to look into my argument.

Sir, I was guilty of no such futility; indeed, I did not even *infer* the incompressibility of the colloids of the arm; I assumed it, took it for granted, and based my argument upon it. In a paragraph of ten lines, beginning "On *a priori* grounds," I disposed of this physical aspect of the problem, appending a footnote reinforcing my assumption with the authority of the emeritus professor of physics at University College, London, Professor A. W. Porter, F.R.S., respecting the relative incompressibility of liquids and colloids, for which there are no data available.

It will not be necessary for me to look up Sir B. W. Richardson's paper; I have had ample personal experience of the incompressibility of muscle when expressing its juice for patients. Sir James wants "something more than my inference" in order to be convinced; well, my paper works out at seven full pages of reprint as against ten lines allotted to my assumption (his inference)—and I am in despair.

The fact is that my argument is not touched upon except in one brief, to me cryptic, sentence: "With the armlet it is difficult or impossible to raise the capillary pressure to that of the arteries, therefore the blood in the compressed artery will move on to the distal capillaries." But when the pressure of the armlet upon the artery becomes equal to the intra-arterial pressure, inasmuch as these two forces are in opposition, will there not be stasis? And if there is stasis, will not the pressure upon the blood in the artery and the blood in the capillaries become equal, since the incompressible *extra* vascular tissues must transmit *equally* throughout their substance the pressure to which they are subjected?—I am, etc.,

London, W.1, Feb. 15th. HARRINGTON SAINSBURY.

ASTHMA.

SIR,—The general practitioner is naturally inclined to be more interested in the clinical aspect of this subject, which may help him to relieve some of the most distressing symptoms of asthma, than in the pathological platitudes of the specialist, and it seems that Dr. Harrington's suggestion (February 9th, p. 271) is distinctly worthy of consideration. We are told that there is no one cure for asthma because the causes are so varied that it is impossible that one treatment should control them all. But there is one point which seems neglected, and that is, that there is one characteristic common to *all* the causes—namely, their power of causing irritation, whether it be bronchitis, nasal polypi, indigestion, or any other of the numerous irritative influences. A further point is that these influences do not cause asthma—of themselves—but only when a further pathological condition is present—namely, a hypersensitiveness of the bronchial mucous membrane, and it seems to me that the research is

directed to the investigation of these irritative influences somewhat to the neglect of the other condition necessary for the production of asthma—namely, the hypersensitiveness or tendency to spasm of the bronchial tissue.

From this point of view it may be of some interest to note the extremely successful results of the treatment of eleven cases of angina by diathermy in my own experience, and many similar results by other workers (*vide* articles in the *Lancet*, October 10th, 1926, by Dr. John Hay and others). Recognition that one of the most potent results of the diathermy current is its marked antispasmodic effect led me to apply it in several cases of asthma with very satisfactory results.

Some three weeks ago a medical man suggested its trial in the case of his wife, who for two years had suffered from asthma of an extreme type. She had been under a well-known London specialist, and later, for four months, under a provincial specialist; not the slightest impression had been made. Her dyspnoea was practically continuous, and was greatly increased by any walking—even a few yards—a sudden noise, or a bright light, or any other external stimulus caused distressing spasms. Such sleep as she obtained was only possible with nightly inhalations of oxygen by a special inhaler. Her condition seemed practically hopeless.

Diathermy was applied and the distress caused by the effort of undressing subsided in a few moments; at the conclusion she was more "comfortable" than she had been for many months. This "comfort" lasted some four hours. Each application since (three times weekly) has resulted in marked increase of relief, both in amount and duration, until after nine treatments her condition has almost incredibly improved. She can now walk round her garden with no distress and has had no actual spasms for some days. She sleeps soundly—seven to nine hours each night—without any oxygen inhalations, and altogether her condition has entirely changed in every way.

I should like to disarm the obvious criticism that one, or even three or four cases, proves nothing definite, that the improvement may not last, and so on, by pointing out that nothing else hitherto tried in two years has had any effect at all, and that it has yet to be proved that the improvement is not going to last.

I merely wish to suggest that this method of treatment is one which may justify further investigation in view of the following considerations: (1) the extreme severity of the case itself; (2) the failure of any remedy hitherto applied (and their name is legion) to effect any improvement; (3) the practically immediate and continued, rapid, and progressive response to the treatment up to date; (4) the fact that diathermy was not applied empirically, but in view of its well-known powerful antispasmodic effect.—I am, etc.,

J. NEWTON DYSON, M.R.C.S., L.R.C.P.

Southport, Lancs, Feb. 7th.

SIR,—I should like to sound a note of warning with regard to nasal operations in cases of asthma. One might be led to surmise from Sir James Dundas-Grant's letter on January 26th (p. 179) and Dr. Barnett's letter of February 9th (p. 271) that there was great hope for the asthmatic in nasal operations. So long ago as 1899 a discussion on asthma in relation to the upper air passages, in which many of the leading rhinologists took part, showed that the general opinion as regards the prospect of obtaining permanent relief by nasal operations was anything but hopeful.

The late Sir Felix Semon summed up his experience of the nasal treatment of asthma by placing the cases in three classes: (1) lasting success obtained, a very small percentage; (2) temporary benefit, a comparatively large percentage; (3) no success at all, a very large percentage. To these Sir StClair Thomson suggested the addition of a fourth class—namely, cases considerably damaged by intranasal treatment (report of the proceedings of the Laryngological Society of London, May 5th, 1899). Since that time much evidence has accumulated to confirm the above summary.

Mr. Frank Coke pointed out, in his letter on February 9th (p. 270), that relief of asthma might follow any surgical operation, such as the removal of the appendix or gall-bladder, and in the same way a nasal operation might bring temporary relief, especially if there is profuse haemorrhage. To my mind the chief source of error comes from the belief that asthma is due to a bronchial muscular spasm set up reflexly by nasal disease, instead of being, as I am convinced, a vasomotor neurosis, dependent upon the general sympathetic nervous system. In certain cases it is advisable to perform a submucous resection, or other operation, to enable the nasal passages to function properly, but do not let us deceive ourselves that such operations are in themselves going to cure asthma. The one point I would emphatically insist upon is that no extensive operation should be undertaken for the removal of nasal polypi in an asthmatic subject with a low blood pressure. These are the patients, I find, who cannot take aspirin, and the complete removal of polypi in these will almost certainly be followed by most disastrous results so far as the asthma is concerned.—I am, etc.,

London, W.1, Feb. 12th. ALEXANDER FRANCIS.

"THE NATURE OF DISEASE."

SIR,—With reference to Sir Humphry Rolleston's kind notice of my work in his Huxley Lecture (February 16th, p. 283), I would like to take this opportunity to say that he has not quite accurately represented my views, and I should be grateful if you would allow me to give an outline of my thesis.

In my opinion there is only one disease, and this the result of the worsting of the host's protective mechanism by the invader. The host's main protective mechanism is the protein in the plasma, which is in the form of colloid particles all negatively charged. Disease is the result of the altered chemico-physical changes to which these protein particles are subjected by the invader. The action of the invader is the same, be it a physical agent, a chemical agent, or a micro-organism. Hence there is only one invader. The protein particles are constituted much as is a solar system, where there is a protein nucleus corresponding to the sun and various adsorbed constituents such as amino-acids, fat, urea, uric acid, sugar, salts, and electrons corresponding to the planets. In the solar system the planets are kept in relationship to the sun by gravity and in the protein particle by water. The water is continuous with the water in the liquid portion of the plasma, which contains in true solution most of the adsorbed constituents bound to the protein nucleus in a colloid complex in the particle. The higher the concentration of the water in the particle the more complex becomes the colloid combination between the adsorbed constituents and the protein nucleus, and vice versa. The adsorption of the constituents by the protein nucleus varies according to the position in the particle taken up by the constituents—that is to say, the colloid combination between the protein nucleus and urea is greater than that between the protein nucleus and sugar. The various adsorbed constituents, so long as they remain in true solution, can be detected as such, but when they enter into colloid combination with the protein nucleus they lose their identity as simple substances, and the more so the more readily they are adsorbed.

When the protein particles are attacked by the invader they lose some of their water, or undergo dehydration, and in the process the various adsorbed constituents are liberated in the order of the relationship they bear to the protein nucleus: first electrons, then calcium, sugar, urea, and so on. The liberation of the various planets renders them ionic, capable of detection, and so far as the electrons are concerned there is a change into heat energy which manifests itself as fever. Protein particles being sent into true solution are adsorbed by other particles whose surface tension may have been already lowered by the invader, in which case the particles increase in size, agglutinate, and tend to become precipitated. This change is referred to as hydration because the particles take up more water and more complex colloid combinations are formed between the protein sun and its planets, thereby lowering the percentage of the adsorbed constituents in true solution. It thus comes about that dehydration is the main change in the acute stage of disease and hydration in the chronic stage. As dehydration is due primarily to the loss of electrons, drugs having a conductor action are called for, and this is the rationale of manganese butyrate in boils, "sup 36" in influenza and pneumonia, "sum 468" and mercurochrome in streptococcal infections, arsenic, bismuth, and mercury in syphilis, etc. In chronic dehydration hydrators are required, and this is the action of insulin in diabetes.

But there is just as much sugar in the blood after as before a dose of insulin. Hydrated protein particles are best broken up and dispersed by dehydrators, hence the use of glucose and oxygen injected subcutaneously in shock, contramine in rheumatism, etc.

The more hydrated protein particles become the greater grows their independence, a fact which tends to make them behave as foreign bodies. Indeed, cancer is the result of such a change occurring in cells. If the hydrated protein particles are too large to circulate they collect in the pericapillary lymphatic vessels and capillaries, where, acting as foreign bodies, they subject the protein particles constituting the protoplasm of the cells of the organ, where the precipitation takes place, to the same changes as the host's main resistance underwent by the invader in the first instance. It is in this way that most of the organic manifestations of disease arise. All the changes the protein particles undergo can be verified, and full data are given in my two volumes of *The Nature of Disease*, published in 1924 and 1927 respectively.—I am, etc.,

London, W., Feb. 16th. J. E. R. McDONAGH.

PYORRHOEA ALVEOLARIS.

SIR,—From time to time letters appear in medical periodicals, as in your issue of January 26th, and statements are made at meetings of learned societies imputing to the toothbrush the causation of pyorrhoea. They are always based on theory and unsupported by evidence. The truth is exactly the reverse—lack of friction causes gingivitis; intelligent use of the toothbrush will both prevent and cure it, as can be proved by anyone who cares to make the experiment.

Primitive man lived perforce on food sufficiently hard and tough to exercise a detergent action on his teeth and gums. With the invention of cooking and the advance of civilization his food became softer, probably never so soft as to-day; as a result the mouth is not cleaned by the action of chewing, soft debris collects about the necks of the teeth, and the gum margin becomes infected, inflamed, and puffy. Because the gum is tender and bleeds easily there is a tendency to choose the softest food, and the sufferer purposely avoids touching the sore spot with the toothbrush; so matters go from bad to worse.

The remedy for all this is friction—massage is the fashionable word nowadays—and in no way can it be applied so effectively as with a toothbrush. The finger is too large; it cannot reach between the teeth, and its use fills up rather than cleanses any interdental spaces which may exist.

A well-shaped brush, with bristles fairly long and not too closely set, and with a longer tuft at the end, can be made to reach practically everywhere, inside and outside. If the gums are tender a "soft" brush—bristle, not badger hair—should be used at first, giving place shortly, as the gums get harder, to "medium." I see no advantage in the very hard brushes advised by some. The patient should be instructed to use the brush after meals—that is, at bedtime, after breakfast, and, if possible, after lunch; it should be impressed upon him that it is more important to brush the gums than the teeth, and that bleeding or tenderness is a sign that friction is needed, not an indication for its avoidance. The teeth should be brushed in the direction of their length, as one would brush the teeth of a comb. Beginning on the gum margin, the bristles should be thrust well between each pair of teeth, both from the outside and especially from the inside, and this is where the tuft comes in. Horizontal brushing, confined as it usually is to the buccal surfaces of the teeth, is of little use, and if vigorous may, with the addition of a dentifrice, cause serious abrasion of their surfaces.

Your correspondent says that the toothbrush "is always septic, and frequently filthy." Septic it is certainly, for we live in a septic world, but filthy it need not and should not be; the mouth is a septic cavity, and probably specially resistant to infection. To insist on sterility of the toothbrush would be to bar its use to 99 per cent. of the population.

For at least thirty years I have advocated the thorough use of the toothbrush, with results invariably good and sometimes almost startling in their success. Soreness and bleeding cease, the gum becomes hard and pink, and the incidence of caries is greatly reduced, often to vanishing point. The only objection that can be proved against it is that it occasionally causes some baring of the buccal surfaces of the roots; but, even if extensive, this is of little moment, since the gums remains healthy and the teeth firm. Common salt, either in powder or solution, may be used with advantage on the brush, but friction is the essential thing and the adjuvant matters little. To leave salt on the upturned brush when not in use is the simplest method of obtaining a high standard of cleanliness.

An ounce of practice is worth a ton of theory, and I invite all sceptics to put my statements to the proof. The results will be in exact proportion to the care exercised. Doubtless, Nature never intended the use of a toothbrush, and when mankind adopts a more natural diet it may not be necessary; but meanwhile, rightly used, it remains the most effective weapon we possess against dental disease.—I am, etc.,

London, W.1, Feb. 11th. J. H. BADCOCK.

AMAUROTIC FAMILY IDIOCY.

SIR,—I thank Dr. Stenhouse Stewart for his reply to my letter (February 9th, p. 270) with further data on the pedigree of amaurotic family idiocy. I agree that if there were originally an equal number of DD and DR types the disease would gradually become rarer throughout successive generations, but assuming that the disease has always been a rare one (which seems much more likely), and that in the first place the DD's enormously outnumber the DR's, so that the chances are that the few existing DR's will all marry DD's, the proportion of each remains the same in all succeeding generations.

In other words, if the total number of the population remains constant, each marriage resulting in two children, the DD-DD marriages result in two DD children, and the DD-DR marriages in one of each. Only when the rare chance occurs of a DR-DR union does the disease reappear, and as the affected RR dies in infancy the proportions of various types remaining in the race is negligibly affected thereby.

As to Dr. Stewart's suggestion of repeated in-breeding leading to the development of recessive factors, this is, of course, an interesting possibility which may be a factor in this disease. I merely wish to maintain that there is nothing in the evidence so far supplied which is against a simple Mendelian transmission.—I am, etc.,

Sheffield, Feb. 13th. ROBERT PLATT, M.D., M.R.C.P.

SIR,—Dr. Stenhouse Stewart's queries about the pedigree of amaurotic family idiocy (January 19th, p. 101) interested me greatly as, since 1923, I have had three cases of this rare disease through my hands.

In April, 1923, I showed before the Children's Section of the Royal Society of Medicine (*Transactions*, Royal Society of Medicine, No. 16) a classical case of Tay-Sachs disease in a non-Jewish child, aged 20 months. Careful search failed to reveal any possibility of any Jewish ancestry in the family for three generations; the parents, however, were first cousins. The second case occurred in a Jewish child with no family history of consanguinity or of mental deficiency for at least two generations. The third case, in a Jewish baby, I showed at the last meeting of the Children's Section on January 25th, and it is still under my care. There is no history in the family of consanguineous marriage or of mental deficiency, but, in view of the recent interest raised, I shall take this opportunity of a more thorough interrogation and investigation.

My own view is that immediate heredity is not an important etiological factor.—I am, etc.,

London, W.1, Feb. 12th. LEOPOLD MANDEL, M.D., M.R.C.P.

TREATMENT OF CANCER BY LEAD.

SIR,—I have read Professor Blair Bell's letter in your issue of February 2nd (p. 224), and cannot enter into further discussion of phrases removed from their context. The report of the St. Bartholomew's Hospital Committee on the lead treatment of cancer is available for those who wish to continue to study the subject. (*St. Bartholomew's Hospital Reports*, 1928, and *Proceedings of the International Cancer Congress*, 1928.) It is for the medical profession to decide whether the continuation of the Liverpool method of treatment is justifiable or not.—I am, etc.,

London, E.C.1, Feb. 17th. J. BASIL HUME.

STANDARDS OF PUERPERAL MORBIDITY.

SIR,—My attention has been drawn to the correspondence which is taking place in your columns concerning the proper standard for estimation of puerperal morbidity. It fell to my lot to bear a considerable part in the establishment of the morbidity index of the British Medical Association, and I shall be obliged if you will permit me to state my recollections of its inception.

At the Annual Meeting of the British Medical Association held at Leicester in the year 1905 I read a paper on puerperal morbidity before the Obstetrical Section, presided over by Dr. Herbert Spencer.[1] In this communication I condemned in no measured terms the then prevalent morbidity index which fixed the limit of health at an arbitrary figure of 100.4° F. This archaic index of morbidity originated in pre-aseptic days, when it was believed that the puerperium must be accompanied by abnormal temperature, because of the greater metabolic processes which were occurring during that time. In practice it produced disastrous results, as patients, because of it, were discharged from hospital as normal with a temperature of 100.3° F., and without any reference to the pulse rate. Instead, I suggested that all temperatures above 99° F. within a certain period, recorded on three consecutive bi-daily readings, and accompanied by a pulse rate of over 90, should be considered morbid.

As a result of this communication the Association appointed a representative committee to study the question and furnish it with a report. The committee assembled at Dr. Herbert Spencer's house in London in the autumn of the same year, and I do not believe that the subject was ever examined by a more representative body. After considerable discussion they rejected the index which at that time was in use in the Rotunda Hospital, and I believe is still employed there. Instead, they unanimously agreed to the following:

> "A temperature above 100° F., occurring on any two occasions between the end of the first thirty-six hours and the end of the eighth day, recorded on a half-minute thermometer, which should be placed in the mouth for a period not under three minutes."

All deaths were to be included as morbid, and abortions excluded, for the reason that hospitals operating in densely populated industrial areas had to admit an undue proportion of septic cases of this kind, thus making it impossible to compare their standard with that of other institutions more favourably situated. The reason for omitting the first thirty-six hours was to eliminate the fear of the temperature reaction being considered abnormal. The eighth day was named to permit hospitals which discharged their normal patients on this date to bring their results into line.

The committee attached great importance to details for recording temperature. The neglect of these details would greatly favour the careless attendant who was under loose supervision. The provisions of this standard were slowly read out by the chairman, and recorded by each one of us present at the meeting. It soon afterwards appeared in my annual report of the Rotunda Hospital, and our temperatures have been recorded by this standard ever since. It has been extensively adopted in the maternity hospitals of Great Britain and Ireland, and is largely in use in Canada and the other British dominions. In these circumstances I suggest that a very careful search be made through the files of the *British Medical Journal*, and if this is done I have no doubt that a full summary of the committee's findings will be brought to light. The Association spent a considerable sum in the assembly of this special committee, and it would be quite disastrous if this money had been expended to no purpose.

In conclusion, I feel at a loss to understand how a "continuous temperature" could be recorded for twenty-four hours. Conceivably it could happen in a State-endowed hospital by leaving a domestic thermometer in the rectum for twenty-four hours, watched over by a large staff for whom some sort of work must be found. The absurdity of estimating a "continuous temperature" in district practice need only be mentioned to be appreciated.—I am, etc.,

E. H. TWEEDY, M.D., F.R.C.P.I.,
Former Master of the Rotunda Hospital.

Howth, co. Dublin, Feb. 13th.

[1] *British Medical Journal*, 1905, ii, 704.

*** The full text of the report drawn up by the Association's Committee on Puerperal Morbidity was published in the *Supplement* on May 19th, 1906.

IMMEDIATE ENUCLEATION FOR QUINSY.

SIR,—The memorandum by Mr. Wallace on the above subject, published on February 16th (p. 296), is of more than usual interest to practitioners and surgeons alike. As a general surgeon I have, of course, much less experience in this class of case than the writer, but my experiences may be worth recording.

Since 1926 I have performed all dissections of tonsils under local anaesthesia, following the technique which I learnt at the Mayo Clinic, where many thousands of such operations are conducted annually. In 1927, after perfecting the technique to my own satisfaction, I dealt with more than seventy hospital patients from the waiting list, treating them as out-patients, and operating in a dental chair. Some four cases can be completed in an hour, and returned home within half an hour of operation, after being inspected and given tea. Haemorrhage is far less marked by this method, and only three cases required ligature. All the patients were again inspected in four days' time, and only one reported haemorrhage, which had subsided by the time the doctor had arrived.

Three cases of quinsy have been treated in the same way, and the anaesthesia was quite satisfactory in spite of the inflamed state of the pharynx. The quinsy itself is not incised, but, after the tonsil has been removed, the pus slowly reaches the fossa, and is gently mopped away by gauze swabs. The other tonsil is not touched unless similarly affected.

As compared with the older methods of treatment the following example will show the comparatively easy convalescence from the condition.

> In March, 1927, I was summoned to see a university "don" in his rooms with a large left quinsy and a temperature of 102° F.; he was endeavouring to correct examination papers "against the clock." A sedative was given, and two hours later under local anaesthesia the affected tonsil was dissected out, the pain and tension being immediately relieved. He returned at once to bed, and completed his work on the following day; two days later he conducted a viva voce examination as if nothing untoward had happened.

From time to time there may be cases presented to us in which a general anaesthetic is contraindicated. I have used this method with advantage on hospital and sanatorium patients suffering from subacute rheumatism and pulmonary tuberculosis respectively. The technique dates back to before 1915, and is described fully in the *Mayo Clinic Papers*, vol. viii, 1916, pp. 895–897.

As hitherto the necessary instruments have been obtainable only in America, Messrs. Thackray of Leeds have copied them for me, and have them available on application.—I am, etc.,

Oxford, Feb. 16th. HUGH WHITELOCKE.

PERSONAL HYGIENE AND MEDICAL EDUCATION.

SIR,—Professor W. W. Jameson's paper in the *Journal* of October 27th, 1928, on "The teaching of hygiene," with your leading article thereon (pp. 733 and 758), add to the ever-increasing call for placing health in the forefront of education, both scholastic and professional. The best is possible scholastically only when every child knows and follows the laws of personal health, when every girl learns

mothercraft, when every mother has due ante-natal and maternity treatment, when every baby is properly fed and hygienically cared for, and when all the rising generation enter the battle of life with balanced development—physically, mentally, and morally. True education means "health for the body, truth for the mind, and goodness for the spirit." Professionally the requirements are that all medical students and nurses should be taught to think and act in terms of health rather than of the diagnosis and treatment of disease, to know at least as much about the mens sana and the corpus sanum as of materia medica, and to busy themselves rather with the prevention than the cure of disease.

Scholastically, much has been done in England under wise leaders—among whom Sir George Newman stands out pre-eminent. But how much remains to be done is shown in the calls for reform that are increasingly being made at practically every educational conference. It is something that England now leads the world in these matters, but it is almost as depressing as it is inspiring to find how much of fundamental importance remains to be done. Professionally we are much farther behind even than scholastically. If the professions, ancillary as well as medical, are to be equal to the new requirements, the authorities—from the lowest licensing body to the General Medical Council itself—must readjust their requirements accordingly. It is not enough that a few specially enterprising and capable individuals go out of the beaten track of practice. As Professor Jameson says, "there is no more important person in the ranks of health workers than the general practitioner—he must be given a correct sense of proportion when a medical student." There may be differences of opinion as to how best to revise an at present overloaded curriculum; there can be none as to the necessity for this fundamental reform in attitude and practice.

As lecturer for many years in the Melbourne medical school, I devoted in my textbook (1914) 208 pages to personal, and 119 to public health; as Victorian delegate to the jubilee congress of the Royal Sanitary Institute (1926) I made a special plea for the "health education of the individual," and two explanatory letters were given prominence in the *Times* of July 10th and August 9th of that year. In the *Transactions* of the Australasian Association for the Advancement of Science (Hobart, January, 1928) will be found two further papers—namely, "Health and education" and "A magna charta for the child." Further, I have presented a report to our cabinet and Parliament on "Maternity and child welfare, health, and education," and a circular letter to authorities has recently been issued by the Society for the Health of Women and Children of Victoria, of which I am president.

Are we, the medical profession, not, as Sir George Newman well and eloquently puts it, "at the door of opportunity," and is it not our duty "to lay the foundations for a new epoch"?—I am, etc.,

J. W. SPRINGTHORPE, M.A., M.D.

Melbourne, Dec. 6th, 1928.

"THE RIGHT TO PRACTISE."

SIR,—Registration under the Medical Acts in this country is of such importance that I wish to controvert the assertion of Dr. A. G. Newell (January 19th, p. 134) that: "A duly qualified medical practitioner is not bound to register."

All medical degrees and diplomas are not registrable in this country, but only those which are contained in Schedule A of the Medical Acts, and those who do not "register," whether their degrees or diplomas are registrable or not, are as restricted in practice as the unqualified charlatan. They cannot hold any appointment as a physician, surgeon, or other medical officer either in the military or naval service or in emigrant or other vessels, or in any hospital, infirmary, dispensary, or lying-in hospital not supported wholly by voluntary contributions, or in any lunatic asylum, gaol, penitentiary, house of correction, house of industry, parochial or union workhouse or poorhouse, parish union or other public establishment, body, or institution, or to any friendly or other society for affording mutual relief in sickness, infirmity, or old age, or as a medical officer of health (Medical Act, 1858, Section 36).

There is only one exception to this, and that is that any person *not* a *British* subject who has passed the regular examinations entitling him to practise medicine in his own country may act as resident physician or medical officer of any hospital established exclusively for the relief of foreigners in sickness, provided that such person is engaged in no medical practice except as such resident physician or medical officer (Medical Act, 1859, Section 6).

Further, the unregistered person is not recognized in law as a duly qualified medical practitioner. He cannot issue a death certificate; he cannot sue for his fees; he cannot give evidence as an expert medical witness in any court of law in this country, nor issue any medical certificate which will be accepted in such court of law.

Registration is the seal which distinguishes the duly or legally qualified medical practitioner from all others, and an unregistered person is therefore not a legally or duly qualified medical practitioner so far as this country is concerned, and cannot practise as such.—I am, etc.,

Hyde, Jan. 26th. J. GORDON MACQUEEN, M.B.

THE CENTENARY FUNCTIONS AT CAIRO.

SIR,—To your report of some remarks made by me at the recent meeting of the Council relative to the centenary of the Faculty of Medicine of the Egyptian University,[1] will you allow me to add a word or two expressive of the feeling of admiration of the British delegates—for I feel sure the others share my feeling—in respect of the life and vigour of the Faculty of Medicine and of the Kasr-el-Aini Hospital, Cairo? In an atmosphere clearly scientific, the hum of activity was arresting. The impression grew in passing from department to department.

Nor can I close without publicly expressing the high appreciation by the delegates of their extremely kind and thoughtful reception by colleagues on the faculty and hospital. While our gratitude is due to everyone who contributed to the successful celebrations, there can be no invidiousness if I ask you to place on record our special indebtedness to the genial and distinguished dean, Mr. F. C. Madden, O.B.E., M.D., F.R.C.S., and the honoured subdean, Professor Ali Bey Ibrahim, M.B.E., whose admission to the rank of Honorary Fellow of the Royal College of Surgeons of England by the President of the College formed a striking scene in a wonderful setting.—I am, etc.,

University of Edinburgh, Feb. 16th. R. W. PHILIP.

[1] *Supplement*, Feb. 16th, 1929, p. 37, Proceedings of Council.

Obituary.

SIR BERTRAM WINDLE, M.D., LL.D., F.R.S.,

Professor of Anthropology and Lecturer on Ethnology, Toronto.

DEEP regret will be evoked in all parts of Ireland by the announcement of the death, at the age of 70, of Sir Bertram Windle, professor of anthropology and ethnology at the University of Toronto, which took place in Toronto on February 14th.

Sir Bertram Coghill Alan Windle was born in England on May 8th, 1858, his father being the Rev. S. A. Windle, B.D., vicar of Market Rasen, Lincolnshire, and his mother daughter of Admiral Sir Josiah Coghill, Bt. His parents removed to Ireland, and he was educated at Kingstown and Repton Schools, later proceeding to his professional studies at Dublin University. He acquired many academic distinctions, among them M.A.Dublin (with first-class honours in natural science at B.A.); M.D., B.Ch.Dublin (having taken first place at M.B.); D.Sc.Dublin; M.Sc.Birmingham; LL.D., R.U.I., Birmingham, and Boston; Ph.D. (hon. causa) Rome; D.Sc. (hon.) Marquette University; and F.R.S. He was made a Knight of St. Gregory the Great by Pope Pius X in 1909, and was created knight after the New Year's Honours List in 1912. In 1891 he was appointed dean of the medical faculty of Queen's College, Birmingham; he later became professor of archaeology, and in 1904 president of University College, Cork. During the fifteen years of his presidency Sir Bertram contributed to the development of the College and enjoyed world-wide eminence as a scholar and writer. In October, 1919, he

accepted an invitation to contribute a course of lectures at the University of Ontario, later being made professor of cosmology and anthropology in St. Michael's College, and special lecturer on ethnology, University of Toronto. During his stay in Canada he became a prominent figure in the intellectual life of the Dominion, where his death will be regarded as a great loss.

In the course of his career Sir Bertram was a member of the General Medical Council (representing the University of Birmingham from 1900 to 1905, and the National University of Ireland from 1914 to 1920), president of the Irish Technical Association, commissioner under the Irish Universities Act of 1908, member of the Consultative Committee of the Board of Education, Commissioner of Intermediate Education, Ireland, member of the Irish Convention, 1917–18, and examiner in anatomy in the Universities of Cambridge, Aberdeen, Glasgow, Durham, and to the Royal College of Physicians, London, and the Royal College of Surgeons, Ireland. In 1920 he was Norton Memorial Lecturer to the American Anthropological Institute. He was considered an unrivalled authority on comparative anatomy and certain branches of archaeology, and his writings in connexion with Catholic philosophy won him a widespread reputation.

Sir Bertram was a member of the British Medical Association, occupying the position of vice-president of the Section of Anatomy and Physiology when the Association held its Annual Meeting in Birmingham in 1890, and that of vice-president of the Section of Anatomy and Histology when it met in London in 1895. Of his publications, which were many, it is possible to mention but a few to indicate the variety of his interests: *A Manual of Surface Anatomy; The Proportions of the Human Body; Life in Early Britain; The Wessex of Thomas Hardy; The Prehistoric Age; Facts and Theories; The Catholic Church and its Reactions with Science;* and many scientific papers and articles.

His first wife was Madeline, daughter of the late Mr. W. Hudson of Birmingham, and in 1901 he married Miss Edith Mary Nazer. The deepest sympathy will be extended to his relatives in their bereavement.

Dr. ARTHUR GORDON MCKAY MURDOCH, whose death occurred on February 5th at the age of 25, was a member of the staff of the Glasgow Corporation Bacteriological Laboratory. He received his early education at the High School of Glasgow, and studied medicine at the University there, graduating M.B., Ch.B. in 1925, and obtaining the diploma in public health two years later. For a year he served as a demonstrator in the Public Health Department of the University, and eighteen months ago joined the Corporation bacteriological staff. He was a member of the British Medical Association. A colleague writes: Engaged as Dr. Murdoch was upon a phase of public health work which is unseen for the most part by the public, his thoroughness and efficiency as a bacteriologist were of much importance to the medical practitioners of the city and to the citizens, especially in connexion with diphtheria, enteric fever, and tuberculosis. To the investigation of these diseases he devoted himself unremittingly, giving of his best for the public weal. He was greatly esteemed by his colleagues, who found in him an ever-obliging, conscientious, and reliable fellow worker.

HOWARD VIVIAN ALEXANDER GATCHELL, who died in Salisbury, Southern Rhodesia, on November 25th, 1928, following an operation for duodenal ulcer, was the son of the Rev. J. H. Gatchell, D.D., co. Tyrone, Ireland. Before the war he held a post under the Middlesex County Council. Dr. Gatchell served in France and rose to the rank of major in 1917; on demobilization he was for a time on the medical staff of the Ministry of Pensions, and in 1920 was appointed medical inspector of schools under the Southern Rhodesian Government. He showed great enthusiasm for his work, which took him all over the colony, where, it is no exaggeration to say, he was known to and respected by everyone. His annual reports were always instructive, and many improvements in the health conditions of the younger Rhodesians owe their inception to his recommendations. Only those who have taken part in the development of a young colony can understand how much his influence counted for. In his spare time Dr. Gatchell built up an extensive private practice in ophthalmology. As a man Gatchell was a typical Irishman; his cheery personality rose supreme over all the hardships and hazards of his journeys on the veld, and his ready wit made him a companion to be enthusiastically welcomed wherever he went. He was a prominent member of the Mashonaland Branch of the British Medical Association, and was the representative of the Branch at the Annual Meeting in Cardiff last year. His death occurred only a fortnight after his return from leave. Dr. Gatchell is survived by a widow and two sons, for whom much sympathy is felt.

Dr. HENRY HERBERT LLOYD PATCH, who died on February 7th, in his fifty-ninth year, had long been in practice as an anaesthetist in Liverpool, where he was held in high esteem by his colleagues. He received his medical education at St. Thomas's Hospital, and in 1893 obtained the diplomas M.R.C.S.Eng., L.R.C.P.Lond., and L.S.A. For a period of about eighteen months afterwards he acted as assistant house-surgeon at the Devon and Exeter Hospital, where his grandfather and great-grandfather had been surgeons. He was subsequently resident medical officer to the Ramsgate General Hospital and Seamen's Infirmary, and visiting surgeon to the Ramsgate and St. Lawrence Royal Dispensary. Dr. Patch commenced general practice at Chudleigh, removing later to London. About eight years ago he settled in Liverpool, where he devoted himself entirely to the administration of anaesthetics, in which he had unusual ability. He was honorary anaesthetist to the Royal Infirmary, the Royal Southern Hospital, the Dental Hospital, and the Liverpool Medical Research Organization, and anaesthetist to the Ministry of Pensions Hospital at Knotty Ash, being also joint lecturer on anaesthetics to the Liverpool University Clinical School. He was a member of the Liverpool Medical Institution. A colleague writes: Dr. Patch's quiet confidence and wonderful disposition were of great advantage to those with whom he worked. His most unselfish character and kindness of heart won for him many friends, and his death will be an irreparable loss to them all. The last three years of his life were harassed by illness, but he carried out his duties with magnificent fortitude, both in the hospitals to which he was attached and in private practice. He is survived by his widow and one son.

We regret to record the death of Dr. ROBERT KINNEAR HAY GILLESPIE, at his residence, Headingley, Leeds, on February 13th. Dr. Gillespie had a distinguished career as a student at Glasgow University, gaining many awards of merit, including the John Hunter medal in surgery and graduating in 1915 with the degrees of M.B., Ch.B. After serving as a resident medical officer on the staff of the Royal Infirmary, Glasgow, he joined the Royal Army Medical Corps and was posted to Salonika, where he served until he was invalided home in 1918. Appointed on his return to the East Leeds War Hospital, he was subsequently transferred to the War Hospital at Beckett's Park, Leeds. He joined the staff of the Ministry of Pensions when the latter hospital came under the control of the Ministry in 1920 and remained in that service until 1927. In September of that year he entered into private practice in the Headingley district of Leeds, and rapidly gained the confidence and esteem of a large circle of patients. In the army, and later in the Ministry of Pensions, Dr. Gillespie gave ungrudgingly of his abounding energy, and many disabled ex-service men will remember him, not only as a skilful and attentive surgeon, but also as a friend and adviser in many matters. His chief hobby was engineering, and his manipulative dexterity was manifest, not only in the operating theatre, but also in the training workshops of the various hospitals to which he was attached. His strong and engaging personality brought him many friends who sincerely regret his death at the early age of 37, a death which was precipitated by disregard of himself in the interests of his work. He married in 1922, and is survived by his widow.

We regret to learn of the death, at the age of 66, of FRANCIS XAVIER DA COSTA, F.R.C.S.Eng., L.R.C.P.Lond., L.M. and S.Bombay, which occurred on December 23rd, 1928, at Bangalore, Southern India. After receiving his early education at St. Xavier's College, Bombay, and graduating in medicine and surgery at Bombay University, he entered Charing Cross Hospital, and obtained the diplomas of the English Conjoint Board in 1888. For some time he served as house-surgeon to Charing Cross Hospital, proceeding to the Fellowship of the Royal College of Surgeons, England, in 1890. Subsequently he held appointments as house-surgeon to the St. Peter's Hospital for Stone, and surgical registrar to Charing Cross Hospital. During this period he earned a high reputation as a coach in medical and surgical subjects. On his departure for India in 1894 he received from his teachers, fellow students, and pupils in England tokens of their appreciation of him as man and colleague. After some years' practice in Goa he proceeded in 1908 to Bangalore, where he soon commanded an extensive practice. In 1915 he was placed in charge of St. Martha's Hospital, where he worked until some five months before his death. He was highly respected for his professional skill, his genial manner, and ready sympathy. The Apostolic delegate in India, the Bishop of Mysore, and other high officials of the Roman Catholic Church have referred to the death of Dr. da Costa as a loss sustained by the whole diocese of Mysore. He leaves a widow, who is also a member of the medical profession, three sons, and three daughters.

The following well-known foreign medical men have recently died: Dr. JEAN SICARD, a prominent neurologist and professor of medical pathology in the Paris faculty of medicine; Inspector-General DELORME, formerly director of the medical school at the Val-de-Grâce Military Hospital and president of the Académie de Médecine, aged 82; Dr. JAMES BADAL, formerly professor of clinical ophthalmology at Bordeaux, aged 89; Dr. LÉOPOLD DANDOIS, emeritus professor of clinical surgery at Louvain and formerly president of the Belgian Royal Académie de Médecine; Dr. ERNESTO TRICOMI, professor of clinical surgery at Palermo; Professor HEINRICH WINTERBERG, a Vienna cardiologist; and Dr. PAUL SILEX, extraordinary professor of ophthalmology of Berlin, aged 71.

CORRECTION.

PROFESSOR T. WARDROP GRIFFITH desires to correct a slip in the obituary notice of Dr. J. E. Eddison published in the *Journal* of February 16th (p. 327). In the fourth line of the second paragraph, for "the first William Hey" read "the second William Hey."

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on February 16th the degree of Doctor of Medicine (D.M.) was conferred on L. J. Barford.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on February 16th the following medical degrees were conferred:

M.B.—E. G. Recordon.
B.CHIR.—I. C. C. Tchaperoff.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council meeting was held on February 14th, when the President, Sir Berkeley Moynihan, Bt., was in the chair.

The secretary reported the death, on January 28th, of Mr. Victor G. Plarr, M.A., Librarian of the College since 1897. The following vote of condolence was passed:

> The Council hereby express their deep regret at the death of Mr. Victor Gustave Plarr, and their very sincere sympathy with Mrs. and Miss Plarr in their bereavement. The Council do also record their appreciation of Mr. Plarr's services to the College as librarian, a post which he held with faithfulness and unfailing courtesy during the long period of thirty-one years. The Council recognize that the reputation of the library has been worthily maintained during Mr. Plarr's term of office, and that the good order in which it has been kept during large additions and several extensions bears witness to his able direction and to the care and attention which he devoted to the duties of his office.

The Library Committee was requested to consider and report to the Council upon the steps to be taken with the object of filling up the vacant office of librarian, and upon what alterations, if any, it would be desirable to make in Section 27 of the Standing Rules relating to the office.

The Diploma of Fellowship was granted to Russell Claude Brock, who had complied with the regulations.

Diplomas of Membership were granted to 143 candidates, and Diplomas in Public Health were granted jointly with the Royal College of Physicians to 37 candidates. (The names of the recipients of the diplomas were printed in the report of the meeting of the Royal College of Physicians, published in our issue of February 9th, p. 276.)

The President reported that he had appointed Mr. R. P. Rowlands as Bradshaw Lecturer for the ensuing year.

Mr. Ernest W. Hey Groves was appointed Hunterian Orator for the year 1930.

The secretary reported that from information recently received from Canada it appeared probable that there would be a sufficient number of candidates to justify a Primary Examination for the Fellowship being held at Toronto this year, that the dates of the examination had provisionally been fixed for August 6th and 7th for the written examination and August 9th and 10th for the viva voce examination, and that Professors William Wright, Le Gros Clark, Lovatt Evans, and John Mellanby had accepted the nomination to conduct the examination, Professor J. B. Leathes having found it not possible for him to act.

The President reported that he had received a letter from the Prime Minister enclosing a cheque for £1,000 as a grant to this College from the sum of money placed at the Prime Minister's disposal by Lord Beaverbrook in gratitude for his and his associates' escape in a recent motor accident: the sum to be expended either as capital or interest for the furtherance of medical knowledge—for example, research studentships, contributions to scientific equipment or to the library, and not to be used for any purpose of a routine character or one which should be met out of ordinary income. The Council referred this matter to the Museum Committee for their advice.

A letter was read from Sir James Berry resigning his seat in the Council, such resignation to take effect at the end of the College year in June. The resignation of Sir James Berry was accepted with regret.

The President reported that an election of four Fellows into the Council would take place on Thursday, July 4th, at 11 a.m., in the vacancies occasioned by the retirement in rotation of Sir H. J. Waring, Mr. C. H. Fagge, and Mr. W. Sampson Handley, and by the resignation of Sir James Berry; that notice of the election would be given to the Fellows by advertisement and by circular on March 9th; that March 18th would be the last day for the nomination of candidates; and that a voting paper would be sent on April 2nd to every Fellow of the College whose address is registered at the College.

The Services.

DEATHS IN THE SERVICES.

Colonel William George Beyts, C.B.E., Army Medical Service (ret.), died in Queen Alexandra's Military Hospital, Millbank, on February 12th, aged 63. He was born on February 24th, 1865, educated at Guy's, took the M.R.C.S. and L.R.C.P.Lond. in 1889, and entered the army as surgeon lieutenant on January 30th, 1892. He attained the rank of lieutenant-colonel on January 1st, 1914, got a brevet colonelcy on January 1st, 1917, became colonel on December 26th, 1917, and retired in 1924. After retirement he filled the post of medical officer of the Tower of London. He served on the north-west frontier of India in the campaign of 1897–98, with the Kohat and Kurram Valley forces, took part in the action of the Ublan Pass, was mentioned in dispatches in the *London Gazette* of December 21st, 1897, and gained the Frontier medal with two clasps; also in the South African war in 1902, receiving the Queen's medal with three clasps.

Lieut.-Colonel Alexander John Willcocks, Bengal Medical Service (ret.), died of pneumonia at Dehra Dun on January 14th, aged 77. He was born on May 15th, 1851, the son of the late Captain W. Willcocks of the Indian Army, and was educated at Aberdeen, where he graduated as M.B. and C.M. in 1873, and as M.D. in 1883, and at Guy's, also taking the M.R.C.S. in 1873. He entered the I.M.S. as surgeon on September 30th, 1873, passing in first, of the first batch admitted to the service after the abolition of the rank of assistant surgeon, became lieutenant-colonel after twenty years' service, and retired on April 1st, 1901. For two years, 1903–5, he acted as a member of the India Office Medical Board. He rejoined for service in the war of 1914–18, when he served in Egypt, and was mentioned in dispatches in the *London Gazette* of July 6th, 1917. After the war he settled in India. Nearly the whole of his service was spent in civil employ in the North-West Province, now the United Provinces. While serving as civil surgeon of Bulandshahr, a small and unimportant station in that province, he distinguished himself by performing a greater number of surgical operations than had ever been done by any civil surgeon before, especially extractions of cataracts. Others may have met with even greater success in this direction in later years, but it was Willcocks who first

discovered the great field for surgical work, especially on the eye, which an Indian district affords, and originated the great development of surgery in India which started in the early eighties of last century. He was one of four brothers who all achieved considerable success in life, and, indeed, might be compared, on a smaller scale, to the Malcolms and the Lawrences. The eldest brother was a chaplain on the Indian Ecclesiastical Establishment, A. J. Willcocks was the second. Sir William Willcocks, K.C.M.G., the famous Egyptian engineer and head of the Irrigation Department in Egypt, was the third, and the youngest was General Sir James Willcocks, K.C.B., who commanded the Indian troops in France in 1914.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE Local Government Bill was read a third time by the House of Commons on February 18th and sent to the House of Lords, where it was formally read a first time on February 19th. The second reading and committee stages were to follow quickly. Days of the committee stage of the Local Government (Scotland) Bill were set down in the House of Commons on February 20th, 21st, and 22nd.

In the House of Lords, on February 19th, a bill to render void marriages between persons either of whom is under the age of 16 was read a second time.

A meeting of the Parliamentary Medical Committee has been summoned for February 26th.

Local Government Bill.

Report Stage.

The House of Commons, on February 12th, began consideration of the Local Government Bill, as amended in committee, on the report stage.

On Clause 4, which deals with administrative schemes, Mr. WITHERS moved an amendment providing that a county council, in the preparation of any scheme relating to hospitals, should consult with the representatives of the voluntary hospitals in the area, with a view to co-operation in the treatment of the sick and the avoidance of overlapping. He said he desired that there should be consultation between the public assistance committees when formed and the voluntary hospitals, and that provision should be made for the most efficient service for the sick when the scheme came into operation. The voluntary hospitals had a very high standard of efficiency in their technical work, and there was an admirable spirit behind that work. When the county councils took over the local infirmaries it was very important that there should be co-operation between what would be the county council hospitals and the voluntary hospitals, because otherwise there would be overlapping, and trouble would arise. It must be disastrous to the voluntary hospitals if the impression was given that these two classes of hospitals were in competition. It was very important that they should work together in harmony, and that it should be understood that the one was not going to supersede the other. Major GLYN seconded the amendment.

Mr. CHAMBERLAIN said that any county council, in preparing a scheme, must have regard to the voluntary hospital provision already existing in that area. It was obvious that no scheme which proposed to deal with the hospital services of the area could really be adequate unless it took account of the existing accommodation in the voluntary hospitals. He was in full sympathy with the general idea of Mr. Withers—that there should be consultation and co-operation between the two classes of hospitals; but he did not think it would be possible to insert this particular amendment. If they were to provide for consultation with representatives of the voluntary hospitals, logically, they could not stop there. There were other voluntary associations doing work on parallel lines with some of the work which it would be the duty of the county councils to perform, and if they were to consult with the representatives of the voluntary hospitals it would only be logical to say that they must consult also with representatives of those other associations. Another practical difficulty was that neither the voluntary hospitals nor those other bodies were organized. There was no system by which they could, as a body, consult with the county council, and to make that a statutory provision would be a mistake. His view was that consultation and co-operation would take place between the voluntary hospitals and the public authorities, but it would not be acceptable to the local authorities if Parliament were to try to lay down precisely how that consultation and co-operation should be carried out.

Major GLYN said that in rural areas a very large number of workers had long been contributing each week to the voluntary hospitals, and it would be hard upon them if the scheme did not take into account the enormous amount of work which had been done in consequence of their contributions. Those interested in hospital work felt that some organization—even if it had to be created *ad hoc*—ought to be taken into consultation in connexion with this scheme.

Mr. W. BENN, in supporting the amendment, pointed out that under the Safeguarding Provisions the Government taxed drugs for hospitals. Two days ago a document was published saying that the assessments of hospitals were actually being raised. Sir R. SANDERS said that on almost every county council there was someone who represented the voluntary hospitals and looked after their interests. Colonel GRETTON, as one who had a great deal to do with the administration of two local hospitals, urged Mr. Chamberlain to accept the amendment. The large hospitals in the country no less than those in the metropolis ought to be taken into consultation in these matters, because they were schools of medicine; they were the ground where the medical profession received its training, and they would not be superseded by the system which the Minister had set up. Mr. HARRIS said that the London County Council had already considered this problem so far as London was concerned, and their way was comparatively easy. They had the King Edward Hospital Fund in London, and had an immense opportunity of making something like a perfect hospital system for the metropolitan area.

The amendment was negatived without a division and the clause agreed to.

Mr. PETHICK-LAWRENCE moved to omit Clause 15, which deals with the recovery of expenses. He said that the clause was inimical to public health. It compelled local authorities to make a charge on all persons using their health institutions, with certain exceptions, and it fixed the amount which the authorities must charge. He had made inquiries, and he estimated that in London that charge would reach from £2 5s. to £2 10s. a week in the case of maternity homes, and from £4 5s. to £4 10s. a week in the case of cancer hospitals. Further, the clause provided that if a patient could not pay, all the persons on whom the patient was regarded as dependent could be called upon to pay the whole of the charge. That would debar members of the working classes from making use of these hospitals. The Minister of Health had put down an amendment which would enable local authorities to refrain from charging the full bill, not only when they were satisfied that the patient or his relatives could not pay, but when they thought it unreasonable that they should pay. That was a very considerable advance, but there remained a great deal of ground where the clause would still fail to meet criticism.

Sir KINGSLEY WOOD said that no one could describe the clause as detrimental to public health. If the clause were deleted the local authorities to whom the institutions were being transferred from the guardians would be under the obligation to charge a pauper for treatment while they would have no such duty in the case of a person who did not come under the operation of the Poor Law. The clause assimilated the position, so that in all cases, except those of infectious disease, where a person could afford to do so, having regard to his financial circumstances, he should make a reasonable payment to the local authority for the treatment he received.

Dr. VERNON DAVIES said that, as a medical man, he hoped he would live long enough to see the treatment of disease according to need and not according to the financial capacity of the patient, and to see the break-up of the Poor Law. They had been assured by the Minister that at present the time for that was not ripe; that it would be impossible for the bill to function and at the same time to break up the Poor Law. So they had the position that under the Poor Law the destitute poor or their relatives could be charged by the local authority a certain amount for their treatment and maintenance, and that, on the other hand, the people who were not poor who were treated under the Public Health Act could escape free. That was a very alarming position, and was undoubtedly penalizing the pauper. They would all have liked to get rid of the pauper charge if they could, but not being able to do that, and as it was not possible even to put all sickness for the time being on the same level, the Minister was making a charge for everybody according to their means. There was to be no increase of the present charge according to the Poor Law. They were not raising the Poor Law fees, nor altering the Poor Law structure. They were to go on as they had been going on for many years. He had had several years' experience in an industrial practice, and he had known of many instances where patients had to go to voluntary hospitals, and also to the Poor Law hospitals. He could say with confidence that never in the whole of his experience had he come across a case where any complaint had been made by patients or relatives of undue charges for hospital attendance, either in the Poor Law hospitals or the voluntary hospitals. The circumstances of the patient were taken into account, the circumstances of the relatives were taken into account, and his experience had been that the people, when they had come out, had been very grateful for what had been done to them. They were not going to alter that by the bill. They were simply going to put them all on the same level until the happy time arrived when they could remove the Poor Law disqualification for illness. Members of the Labour party were perhaps unduly apprehensive of the dangers of this clause. They seemed to think that people would be afraid to go

to the hospitals on account of the charge. When people were ill money did not count. Treatment came first, and they went to the hospitals and were only too glad to get there. He could not understand why the Labour party should have the idea that the Government, the hospital authorities, and the guardians of the poor were simply out to rob the poor of all they could. (Labour cries of "No.") The suggestion was that the charge they were going to make, legally or illegally, was so high that the people would be terrified to go into hospitals on account of that charge. It had been said that people with cancer, rather than go to these hospitals and pay an enormous price, would sit at home and run the risk of suffering, and would rather die for lack of treatment. That did not happen. He had never heard a case of any patient, pauper or otherwise, suffering from a disease like cancer where the patient did not get the best medical attention and where everything was not done that could be done to give him relief. The bill was altering the law, but it was doing nothing to increase the standard which at present existed under the Poor Law. It had been said that unless a person could pay £3, £4, £5, or £6 they could not go in, but that did not happen. The clause was of great benefit to the bill. The ordinary working folk wished to be treated no better than were the paupers.

The amendment was rejected by 221 votes to 114, and the amendment of the Minister of Health, referred to in Mr. Pethick-Lawrence's speech was inserted. The clause was then agreed to.

On February 13th Mr. CHAMBERLAIN carried an amendment extending to the county of London the clause empowering county councils to act jointly with other local authorities in preparing or adopting town-planning schemes.

Clause 54 authorizes the Minister to make regulations regarding the qualifications of medical officers or health visitors appointed by a local authority under the Maternity and Child Welfare Act, 1918, and the Public Health (Tuberculosis) Act, 1921, or under any regulations for the treatment of venereal disease made under the Public Health Acts. On the motion of Mr. CHAMBERLAIN the House added, after "Public Health Acts," the words "1875 to 1926, and the Public Health (London) Act, 1891."

Clauses 55 on maternity and child welfare services, 56 on notification of births, and 57 on supervision of midwives, were all carried without debate. Clause 58 provides for the survey, by county councils, of the hospital accommodation provided for the treatment of infectious disease, and for the submission to the Minister of schemes for providing adequate hospital accommodation for such disease. Mr. CHAMBERLAIN moved and carried an amendment declaring that in this clause "infectious disease" should not be construed as including tuberculosis or venereal disease. He said these were already separately covered.

Clause 94 empowers the Minister to reduce grants to councils which have failed to achieve or maintain reasonable progress in public health services. On the motion of Sir KINGSLEY WOOD this was amplified to make clear that the Minister could thus act either on representations made to him by any association or body of persons experienced or interested in matters relating to public health, or without such representation. Sir Kingsley Wood said the amendment had been pressed from all quarters of the House.

Clause 120—"power to remove difficulties"—was discussed on February 14th. Mr. PETHICK-LAWRENCE asked if the Minister's power to modify certain provisions would apply to the definitions clause. That clause did not define infectious disease. It might be convenient for the Minister, "for the purpose of removing difficulties," to say that no kind of tuberculosis should be included in the definition of infectious disease.

Sir KINGSLEY WOOD said that if a local authority wished to find out what an infectious disease was it must look elsewhere than in this bill.

On Clause 123, which sets out definitions, Dr. FREMANTLE moved to insert the following definition of infectious disease:

"'Infectious disease' means any of the diseases named in the Infectious Diseases (Notification) Act, 1889, Section 6, and any other diseases added thereto by order of the local authority with the approval or concurrence of the Minister of Health, or any infectious disease made notifiable by Order of the Minister of Health under Section 30 of the Public Health Act, 1875, and the corresponding Section of the Public Health (London) Act, 1891."

Dr. Fremantle said that Clause 15 of the bill contained no definition of infectious disease, though it made an exception concerning the recovery of a contribution towards the cost of treatment from a person suffering from such disease. For administrative purposes a uniform definition of these excepted diseases was necessary. The definition might be "diseases which are notifiable by law." It was absurd to leave infectious disease to be defined by any medical man.

Mr. CHAMBERLAIN said he could not accept the amendment. The definition suggested by Dr. Fremantle would exclude venereal diseases, which were not notifiable. Infectious diseases were not defined in the Public Health Acts, and therefore not in this bill.

The amendment was negatived, and after further debate the report stage closed.

Third Reading.

The Local Government Bill was read a third time by 292 to 113 on February 18th. In moving the third reading Mr. CHAMBERLAIN said the measure was not going to stifle or cripple local services, but would prove a jumping-off ground for a fresh leap forward of the standard of health and welfare throughout the country. He defended the financial basis of the bill.

Mr. ARTHUR GREENWOOD, on behalf of the Labour party, moved the rejection of the bill, one reason adduced in the motion for rejection being that it would degrade the standard of the social services and cripple their development.

Mr. PETHICK-LAWRENCE, seconding, said the bill could not be practical when it gave relief to breweries and none to hospitals.

Mr. ERNEST BROWN condemned the bill for concentrating health services in the hands of county councils and county boroughs, and for dissipating the funds that would make the health services effective. He predicted that the block grant would prove insufficient all over the country. At present there were 350 whole-time medical officers of health and 1,150 part-time officers. He anticipated that in five years those figures would be reversed, that every one of these doctors would want assistants, and that, if they were to do their job, the money provided by the block grant would not suffice. The bill had gone too far in the centralization of health services.

Dr. FREMANTLE desired to sum up the bill's use and value to the public health and local government services. The bill was a definite help to agriculture, and agriculture was of value from the health point of view as the basis of country life. The Poor Law, which the bill sought to change, was the first main provision made by Parliament for protection of the health of the people. Out of its institutional and outdoor relief was developed the system of medical attendance free for every man, woman, and child. He regretted that, as time became ripe for another development of local government, the House, instead of founding health services on the Poor Law, set up another system under urban and district councils. In 1888 Parliament further established the county councils, and as a result public health for forty years had had a multitude of authorities and a tangle of administration, which had meant inefficiency, weakness of resources, and dissipation of attention and energy. Medical officers trying to carry out health measures realized the enormous resources of the Poor Law. The bill's proposals for consolidation were not a final solution, but were going in the right direction by placing Poor Law into the hands of the county councils and by co-ordinating the work of the county councils with local sanitary authorities. He attached importance to the powers given in the bill for the overhauling and systematizing of schemes for infectious diseases, water supply, and sewage disposal. On some points those who were interested in such matters were not entirely satisfied, but they were minor points, and he hoped amendments might be made on them in the House of Lords.

Mr. GATES said he had criticized the bill because he feared maternity and child welfare services would suffer under the block grant system. A great many of the voluntary associations were still not quite easy in their minds, but they were a great deal easier since certain amendments had been inserted in the bill by the Government. The voluntary associations, which had done so much work in connexion with public health services, would have much preferred that the maternity and child welfare services should still have been left on the percentage grant system for the original term of seven years if that had been possible. The voluntary associations could not help being afraid that many councils would prefer to use the block grants for the purpose of reducing their rates rather than for promoting these services. It was an unfounded fear, and the Government's amendments would reduce the grounds for it to a minimum.

Sir KINGSLEY WOOD said that one of the most unfounded criticisms of the bill was that which found a place in the Labour party amendment—namely, that the proposals of the bill would degrade the standard of social service in the country. The discussion on block *versus* percentage grants had amply demonstrated that there was hardly anyone who was prepared to stand up wholly for the present percentage grant system. A most welcome fact had been the considerable change of opinion among people particularly interested in the maternity and child welfare service proposals of the bill. It had been more and more appreciated that the present system benefited the rich areas and handicapped the poor areas, and that there was no effective power vested in the Minister of Health to bring about a better state of things in the case of an authority that was not properly discharging its health duties and functions. The debates on this bill had clearly demonstrated that the new system would at any rate remedy many of those grave defects.

The Labour amendment to reject the bill was defeated by 292 votes to 113, and the bill was then read the third time.

The bill was introduced into the House of Lords on February 19th and read a first time.

The Assessment of Hospitals.

In an answer given on February 13th to Sir Nicholas Grattan-Doyle Sir KINGSLEY WOOD said hospitals could not be exempted from rating without legislation. Mr. Chamberlain was of opinion that such a proposal could not be considered apart from the claims made for other charitable and public institutions. The

same considerations applied to preferential terms of assessment. The Government desired to do what it could for voluntary hospitals, but if they began to give preferential treatment they would be confronted with claims on behalf of blind institutions and other institutions. The Central Valuation Committee had made recommendations with respect to the assessment of hospitals and charitable institutions, and when these recommendations had been adopted there should be no undue hardship.

On February 14th Mr. ROBERT MORRISON put a question asserting that under the Rating and Valuation Act, 1925, the assessment of provincial hospitals in England and Wales had been increased from £1.56 per patient bed to £2.36 per patient bed. Mr. CHAMBERLAIN replied that he had no general information on the effect of the revaluation of hospitals. The subject would probably be discussed many times, but in legislation this Parliament had said its last word. In Sheffield the new assessments of all the voluntary hospitals showed an increase of £11.

Automatic Machines for the Sale of Aspirin.—Sir ROBERT THOMAS asked, on February 13th, whether Mr. Chamberlain was aware of a proposal to install automatic machines for the sale of aspirin, and whether the uncontrolled sale of this drug was in the public interest. Sir KINGSLEY WOOD said the question had been referred to the Inter-Departmental Committee on the Poisons and Pharmacy Acts, whose report Mr. Chamberlain must await. He could not say when that report would be received.

Central Midwives Board and Instruction of Pupil Midwives.—On February 14th Mr. CHAMBERLAIN, answering Mr. P. J. Hannon, said he knew the Central Midwives Board had directed that pupil midwives at the two hospitals of the Birmingham guardians should cease to take their theoretical instruction within these hospitals. In this matter he had no authority to interfere with the discretion of the Central Midwives Board. A departmental committee was considering the powers of the board, and a question like that from Birmingham would come within the terms of reference. Mr. Chamberlain returned a similar answer to Sir Philip Richardson, who called attention to the fact that the Central Midwives Board had instructed the Kingston-on-Thames board of guardians that pupil midwives were not to receive lectures from the medical superintendent of the Kingston and District Hospital.

Notes in Brief.

During the twelve months ended February 1st Mr. Chamberlain confirmed schemes for clearance of insanitary areas in Chelsea, Leeds, Sheffield, Knaresborough, Wednesbury, Brampton, Preston, Rochdale, Exeter, and Liverpool. Nine schemes are at present under his consideration.

During 1928 eighteen airmen were discharged from the R.A.F. suffering from pulmonary tuberculosis. Three of these cases were held to be attributable to service. The number of men discharged from the army for tuberculosis in 1928 is not yet available.

The Home Secretary states that to remove injured persons to hospital the Metropolitan Police make use of the ambulances of sixty different agencies, including the St. John Ambulance Association, forty-two urban district councils, and thirteen borough councils.

It is not the practice for Poor Law inspectors of the Ministry of Health to attend inquests on persons dying in Poor Law institutions.

Under the direction of the First Commissioner of Works a survey of places in London available as shelters from aerial attack is being made.

Medical News.

AT a meeting of the Royal Society on February 28th, at 4.30 p.m., a discussion on ultramicroscopic viruses infecting animals and plants will be opened by Sir Charles Martin, F.R.S.

UNDER the auspices of the National Council for Mental Hygiene Dr. W. A. Potts will deliver a lecture on "The irresistible impulse" at the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Wednesday, February 27th, at 5 p.m.

THE Sections of Urology, Pathology, and Therapeutics of the Royal Society of Medicine will hold a joint discussion on urinary antiseptics on Thursday, March 21st, at 8.30 p.m.

IN connexion with the inauguration of the Jordanburn Nerve Hospital, the chairman and managers of the Royal Edinburgh Hospital for Mental and Nervous Disorders have issued invitations to a dinner in the Hall of the Royal College of Physicians of Edinburgh on Monday, February 25th.

DR. HECTOR CAMERON will lecture for the Fellowship of Medicine on Monday, February 25th, on "Appendicitis and other causes of acute abdominal pain in children" at the Medical Society, Cavendish Square, W.1, at 5 p.m. On Wednesday, February 27th, at 4 p.m., a clinical demonstration will be given by Dr. Knyvett Gordon on "The leukaemias and Hodgkin's disease" at the Wellcome Museum of Medical Science, 33, Gordon Street, W.C.1. On the same day and at the same time Dr. Kenneth Playfair will demonstrate heart cases at the Royal Waterloo Hospital. The lecture and both demonstrations are free to medical practitioners. A week's intensive course begins at the Brompton Hospital for Chest Diseases on February 25th. The Hospital for Sick Children will provide a morning course from February 25th to March 9th; early application is desirable as the class is limited to 20. In March two special courses only will be held, both of these from March 11th to March 23rd. The first is an all-day course at the Royal National Orthopaedic Hospital, the minimum entry being 10. The second is in ophthalmology at the Royal Eye Hospital, and consists of instruction in the afternoons only. Copies of all syllabuses, specimen copies of the *Post-Graduate Medical Journal*, and information relating to the general course, consisting of the clinical practice of the various affiliated hospitals, can be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

DR. R. G. CANTI of London and Dr. Regaud of Paris, who recently delivered addresses at the Berlin Medical Society on the control of cancer, have been elected foreign members of the German central committee for the investigation and control of cancer.

AMONG the various special holiday tours arranged for members of the medical profession one of the most attractive is the annual cruise organized by the *Bruxelles-Médical*. This year the cruise will extend over twenty-four days, from July 13th to August 4th, passengers embarking and leaving the motorship *Brazza* at Zeebrugge. From Zeebrugge the *Brazza* will cross the North Sea to Kopervick, and the following eight days will be spent in cruising round the fiord-broken coast of Norway, with opportunities for visits to places of interest. The voyage will then be continued north into the polar circle to Svartisen and the Lofoden Isles, the return journey being broken by calls at the Faroe Isles, the Shetlands, and at Leith. The fares, not including excursions, will range from £20 5s., in the second class, up to £92 5s. 6d., de luxe, per person for doctors and their relatives. Persons not connected with the medical profession but vouched for by their family doctor may be admitted to the cruise at slightly higher rates. Early application for particulars should be addressed to Croisière "Bruxelles-Médical," 29, Boulevard Adolphe Max, Brussels.

THE Ministry of Health has issued a memorandum (No. 139) describing the bacteriological standards for the various classes of graded milk prescribed by the Milk (Special Designations) Order, 1923, the methods of sampling milk, the laboratory technique of bacteriological examination, and the form in which the results of examination should be recorded. The leaflet may be obtained from His Majesty's Stationery Office.

DR. G. B. HILLMAN has been appointed a Justice of the Peace for the county borough of Wakefield.

AN alabaster tablet in memory of the late Professor E. M. Crookshank, M.B., has been placed in East Grinstead parish church.

THE Meteorological Office has issued Section VI of the *Book of Normals* of meteorological elements for the British Isles, containing normals of relative humidity. This publication includes an explanatory chapter containing a note on relative humidity and a description of the methods used in securing the data for the tables and isopleth diagrams which follow. These contain the normals of relative humidity for each hour of the day in each month and in the year for twelve observatories in the British Isles. Copies of the pamphlet may be obtained from H.M. Stationery Office, or through any bookseller, price 9d. net.

A RESIDENTIAL school for children, aged from 4 to 10, and crippled by surgical tuberculosis, infantile paralysis, or rickets, has been established at Bournemouth by the Shaftesbury Society and Ragged School Union. There is a similar institution at Hastings for boys aged 10 to 16, and another at Margate for girls in the same age group. The schools have been approved by the Ministry of Health and the Board of Education as centres to supplement the provision made in hospitals and schools for the physically defective. Further information will be supplied by the secretary of the society, John Kirk House, 32, John Street, W.C.1.

THE Hungarian Minister for Public Welfare and Labour has convened a conference on x-ray and high current prophylaxis, under the chairmanship of the State Secretary, Dr. T. de Györy. A committee of x-ray experts and engineers was appointed subsequently to draw up a scheme of prophylactic rules against x-ray and high current injuries; to watch the scientific and technical development of radiology; and to keep in touch with foreign committees of this kind. Its first meeting was held in Budapest on February 4th.

WE have received a copy of a little work on Sweden issued as a souvenir of the Swedish section of the International Press Exhibition held last year at Cologne. In addition to miscellaneous information about the country the work contains an interesting and lavishly illustrated account of

the Swedish press from the earliest times until the present day, and an attractive article on Sweden as a country for tourists, from which we learn that a free supply of drinking water changed several times daily is provided in all the railway carriages, an example which might be followed in other countries.

THE National Baby Week Council has awarded the Lady Astor shield to the Kettering Urban District Council Ladies' Voluntary Committee for Infant Welfare for the most effective local Baby Week campaign in a large area in 1928. The Oldbury Infant Welfare Centre secured the second place and will receive a special trophy. Certificates of merit have been gained by the Bilston Urban District Council, Kingston-on-Thames Infant Welfare Centre, and Sunderland County Borough. The William Hardy Shield, which is reserved for smaller areas, was won in 1928 by the Hill and Cakemore (Worcestershire) Infant Welfare Centre, the Halesowen Centre securing second place. Certificates of merit were awarded to Bungay (Suffolk) Nursing Association, East and West Molesey (Surrey) Infant Welfare Centre, Lymington (Hants) Infant Welfare Centre, and Welwyn Garden City (Herts) Health Association.

THE British Engineering Standards Association, which represents all the principal engineering institutions, has issued a British standard specification for the electrical performance of transformers for *x*-ray purposes. It is the first specification of the kind to be issued relating to *x*-ray apparatus, and it applies to the main high-tension transformers, dealing with the subject on lines similar to the corresponding specification for the electrical performance of transformers for power and lighting, but with the necessary modifications to meet the service conditions of *x*-ray work. The definition of the rating of the transformer is given, also the method of testing output, and some notes on rectification. Copies of the specification (No. 326, 1928) can be obtained at 2s. 2d., post free, from the Standards Association, 28, Victoria Street, London, S.W.1.

WE have received the report of the School of Medicine of Shantung Christian University which covers the year ending August 31st, 1928. This University which is under joint British and American control, suffered severely from the recent disturbed conditions in China; the diploma of the medical school was, however, awarded to twenty students last May. It is hoped that during the present year more settled conditions will prevail and enable the University teaching to be extended.

THE most recent issue of the sections of the International Labour Office *Encyclopaedia of Industrial Hygiene* contains Brochures No. 134 and No. 140, dealing with basic slag, basket weaving, bones industry, boot and shoe manufacture, brass, brooms, and building trades respectively. This issue completes the subjects coming under the letter "B," which may therefore now be assembled in their correct order. When the pamphlet edition is complete the entire work will also be issued in volume form.

A LIST of students from other countries who are studying in the universities and university colleges of Great Britain and Ireland in the current session has been published, at the price of 1s., by the Universities Bureau of the British Empire, 50, Russell Square, W.C.1. The list includes 5,170 names—against 4,875 a year ago—arranged according to their countries under each university or college. Each continent and practically every European country—from Turkey to Iceland—is represented; there are over 1,500 names of students from India, and between 500 and 600 in each case from the United States and South Africa. At the other end of the scale Armenia, Manchuria, and the Dutch East Indies are each represented by one student.

WITH a view to disseminating information about the proceedings of Hungarian medical societies and publications, arrangements have been made to publish, at fortnightly intervals in German, a journal of clinical abstracts and medical news entitled *Verhandlungen der Ungarischen Aerztlichen Gesellschaften*. It may be obtained from the editorial office, Vadász-utca 26, Budapest V, the annual subscription being £1.

THE Rumanian Government has conferred the distinctions of Grand Officer of the Crown of Rumania on Professor Marcel Labbé, and of Commander of the Star of Rumania on Professor Rathery, Dr. Laignel-Lavastine, and Dr. Armand-Delille on the occasion of the fifth congress of thalassotherapy.

THE following appointments have recently been made in foreign medical faculties: Dr. Eckert Möbius, professor of oto-rhino-laryngology at Halle, in succession to Professor Denker; Dr. Tarozzi, professor of morbid anatomy; Dr. Centani, professor of general pathology at Bologna; and Dr. Reeb, professor of gynaecology and obstetrics at Strasbourg in succession to the late Professor Schickelé.

A PAN-PACIFIC congress of surgery will be held at Honolulu in April.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF NAEVUS IN INFANTS.

"FREE STATE" asks for advice how to treat a child 6 weeks old who has a naevus on the cheek about the size of a threepenny piece. It was not noticed till the child was about ten days old. Ought operation to be postponed till the child is older; and what operation would be best—the electric needle, caustic, ligature, or the knife?

DRY SKIN.

DR. E. MARGARET PHILLIPS (Pekin) writes: In reply to "H. M. C.'s" query on December 15th, 1928 (p. 1120), I would suggest simple lanolin for his patient's skin cracks. The Pekin climate is very dry, and numerous cracks on the finger-tips and sides used to make the winters miserable for me, but since I discarded all creams and lotions at the beginning of this winter and used only Messrs. Burroughs Wellcome and Co.'s toilet lanolin I have not had a single crack. My hospital patients are quite happy with plain vaseline or boric ointment, but I like this lanolin because it does not leave the skin greasy. I apply it two or three times a day, and wash the hands in cold water during the daytime.

SOUND-PROOF DOORS.

DR. F. G. GARDNER (Oxford), in reply to the question on February 16th (p. 331), how to prevent the transmission of sounds between consulting and waiting rooms, writes: "Inquirer" will probably find much to interest him in an article in the *Times* of February 5th, entitled "Quietness in City offices." This article, which deals with the application of absorbent coverings, such as a special seaweed from Nova Scotia, to walls and ceilings, is written in such convincing style that it seems as if the question of noise abatement, in so far as it applies to any individual building, or part thereof, is almost settled.

INCOME TAX.

Replacement of Car.

"A. B." bought an 11.9-h.p. car, two-seater, in 1922 for £490, and has sold it for £30, buying a 15.9-h.p. saloon for £375. What can he deduct for income tax?

*** The principle involved is that no expenditure in respect of improvements can be deducted. Horse-power is an element, but only one among several, in that question. Prima facie, however, the new car is one of a better range or type than the 1922 car, and, if so, the amount allowable is, strictly, the excess of the cost in 1928 of a car similar to the one replaced over the £30 received.

Car Transactions.

"R. S. T." has hitherto adopted the basis of renewals, his last allowance being made in respect of a renewal occurring in 1927. He contemplates retiring in 1930, and inquires whether he should now change the basis of allowance.

*** Yes; otherwise, of course, he will never receive any allowance for the car he is now using. He could not have changed for 1928–29 because the 1927 allowance is, in effect, made for that year, inasmuch as he is assessed on the previous year's basis. Consequently, it seems that he will receive an allowance for 1929–30 only.

Expenses while on Colonial Leave.

"S. W. T. L.," a medical officer in the Colonial Service, is home on leave. Can he deduct anything in respect of expenses incurred (*a*) in the purchase and future freight to the colony of a car which is being used for pleasure but will be taken abroad for professional use, and (*b*) in connexion with a post-graduate course he is taking?

*** (*a*) Present expenses are not wholly, exclusively, and necessarily incurred in the performance of the duties of his office and cannot be deducted in the taxation of his leave pay. (*b*) No; such expense is analogous to capital outlay for a future return.

Colonial Gratuities.

"J. C. D." asks if gratuities for services in military and colonial medical services are subject to income tax, whether the recipient is a British resident or not.

*** Gratuities paid in respect of service in connexion with the Great War to members of the military forces of the Crown were specifically exempted by Section 17 of the Finance Act, 1919. If our correspondent's gratuities do not fall within that description, we do not know of any grounds on which they can be claimed to be outside the scope of the tax. Non-residence in the United Kingdom, however, would seem to be sufficient, provided that no remittances are made to this country out of the gratuities.

Cash Basis: Retirement from Practice.

"T. T." retired on April 1st, 1928, his partner taking over the whole of the practice, but not "T. T.'s" share of the book debts. Is "T. T." liable on the subsequent cash receipts.

*** No. So far as our correspondent is concerned, these receipts represent the realization in cash of the results of past earnings. From April, 1928, onwards the remaining partner is liable in respect of the whole of the profits of the practice. If those profits are measured on the basis of the value of bookings after April 1st, 1928, no complication arises; if on the cash receipts basis, then it is clear that the whole of the receipts, including "T. T.'s" share, must be reckoned in the computation, otherwise the "receipts" will not correctly indicate the full practice profits.

LETTERS, NOTES, ETC.

THE MAYOS.

WE wish to correct an error which crept into the annotation published under the above heading in our last issue (p. 309). In column 2 it is stated that William Worrell Mayo received his medical education in Manchester. This is not correct. He was a pupil of John Dalton, the famous chemist, and after he went to New York in 1845 he practised as an analytical chemist. He did not take up a medical career until later, obtaining his medical degree from the University of Missouri in 1854. To quote the *Manchester Guardian* of February 2nd, he became a pioneer, not only in surgery, but in the establishment of civilized life.

TREATMENT OF INFLUENZA.

DR. J. T. MACLACHLAN (Ardrossan) writes: I regard influenza as the most curable of all the acute diseases which a practitioner is called upon to treat. By influenza I mean a disease with a rapid onset, a smart rise of temperature being associated with a severe headache and pains all over the body in the muscles (myositis). The back muscles are very tender, particularly below the right scapula. The drug I have used for over twenty years is sodium salicylate, given in doses of 20 grains every two hours. About 120 grains are all that an adult man will require. All pains should then have gone and the temperature have returned to normal. Profuse sweating is the rule after taking the drug. For women 15-grain doses will suffice. If influenza is not promptly brought to an end with six doses, then we are probably dealing with a case of pneumonia, over the course of which the drug is useless.

THE HEREDITY OF DEMENTIA PRAECOX.

DR. J. E. DHUNJIBHOY (Medical Superintendent, Ranchi Indian Mental Hospital, Bihar and Orissa, India), in the course of a letter on this subject, writes: I entirely disagree with the opinion expressed by Lieut.-Colonel Jagoe Shaw (*British Medical Journal*, September 29th, 1928, p. 566) that "inbreeding" is a very definite cause of the high incidence of dementia praecox among the Parsees of India. The incidence of this disease is high in England, Germany, France, Italy, and America, yet none of these nations is known to practise inbreeding like the Parsees. Parsees are the most Europeanized community of India and they follow Western civilization, especially on its educative side. In my own experience of lunacy work in India I have found that the incidence of dementia praecox is always high among the educated classes; it is high among the educated class of Bengalis, who, like the Parsees, follow Western civilization and education; for similar reasons it is high among the domiciled Anglo-Indians. I am entirely with those who believe that the stresses of present-day civilization and education, though not the sole cause of dementia praecox, at least have something to do with it. I am in no sense a champion of inbreeding, and fully realize its undesirability, but what I am urging is that its relationship to dementia praecox has never been definitely established. The Parsee community has been inbreeding for more than 1,200 years, and its general health is not impaired as compared with that of other communities of India which do not practise inbreeding. Further, as the general consensus of opinion is in favour of greater hereditary predisposition in manic-depressive psychoses than in dementia praecox, inbreeding should produce more manic-depressive psychoses among Parsees than dementia praecox. Yet these psychoses and other organic inherited diseases which inbreeding is bound to influence are not increasing among the Parsees. Finally, figures taken from the annual reports of the various provincial mental hospitals in India should convince Colonel Jagoe Shaw that dementia praecox is not so rare as he imagines amongst other communities in India.

HYDROCEPHALUS WITH BREECH PRESENTATION.

DR. K. R. KINI (Mangalore, India) writes: In view of its rarity the following case of breech presentation deserves recording. A primipara, aged 18, after labour for three days, gave birth to a child as far as the neck, when progress ceased, though the pains continued. A country midwife had tried embryotomy, cutting open the spinal canal and exposing the structures of the neck; a meningocele in the lumbar region had been opened. The diagnosis lay between twins and hydrocephalus. Vaginal examination revealed the face of the child posteriorly, the occiput anteriorly; no other foetal parts could be felt, so I decided it must be a case of hydrocephaly. I tried perforation of the head through the mouth, but could not succeed; next I tried through the exposed spinal column, but failed again; then I rotated the head, bringing the occiput posteriorly, and perforated with success, evacuating four pints of clear straw-coloured fluid. The uterus began to act with great force, and the cranium was delivered without further delay, as was also the placenta. On the second day there was a temperature of 99° in the morning and 101° in the evening, but by the fourth day it was normal, both morning and evening, and the discharge was healthy. By the ninth day the patient was taking normal diet and had recovered from her uterine trouble, but on the tenth day she had an attack of pneumonia and died three days later. I wish to draw attention to the fact that it is not possible in such a case to perforate through the mouth; it is necessary to get the head posteriorly and perforate.

INTERNATIONAL MEDICAL CONGRESS AT CAIRO.

Commemorative Stamps.

DR. JAMIESON B. HURRY (Bournemouth) writes: In honour of the International Medical Congress recently held at Cairo, the Egyptian Government has issued two postage stamps which possess some historical interest. The first stamp (5 millièmes)

depicts Imhotep, the Egyptian Deity of Medicine, seated on his throne, grasping the sceptre of power in his right hand and the "ankh," or symbol of life, in his left. The second stamp (10 millièmes) exhibits a portrait of the Viceroy Mohamed Aly Pasha, to whom the foundation of the Medical School of Cairo one hundred years ago was due. This is probably the first time in the history of medicine that one of its tutelary deities has appeared on a stamp.

ASTHMA IN CHILDREN: A CORRECTION.

WE are asked to make the following correction in the article by Drs. R. H. Simpson and K. Stone published in the *Journal* of February 16th (p. 291), the corrected proof of which was not received until after we had gone to press. The last sentence in the small type paragraph immediately preceding the final paragraph of the article (p. 293) should read: "Cases 1, 3, and 9 are improved, but to a lesser degree than the four cases mentioned above." In the following line (the fourth from the end) for "six" read "four."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 49, 52, 53, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 51.

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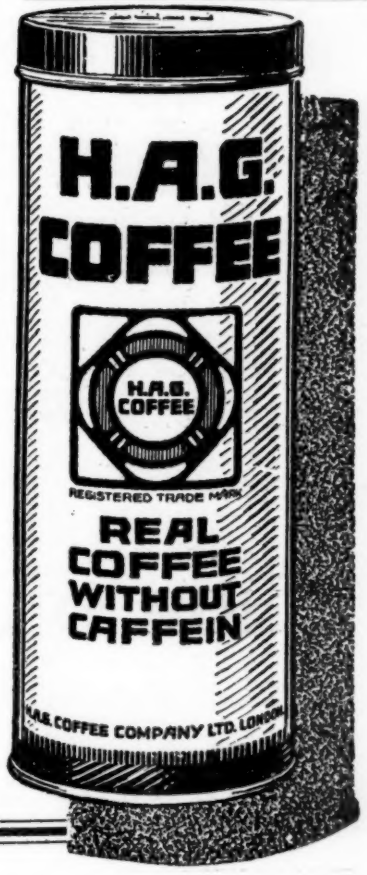

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